MARINE REVIEW

VOL. XXXI. CLEVELAND, O., JANUARY 19, 1905. No. 3.

ANNUAL MEETING

Since the Lake Carriers' association became an incorporated body a large part of its work has been transacted through committees and there has been noted a tendency on the part of the individual vessel owner to absent himself from the meetings on the ground that his activities were not really called into play—that is, if he had business at home that was at all urgent he would be most likely not to attend the meeting. To minimize all danger of this, because the Lake Carriers' association really desires the full attendance of all members, the social feature will hereafter be made a prominent part of the gathering. This social part was splendidly inaugurated at the annual meeting held at the Cadillac hotel in Detroit last week by a banquet which was given in the room in which the Lake Carriers usually assemble at that hotel. The affair was beautifully conducted and tended much to consolidate the interests of the association. At the opening session on Thursday morning Mr. Harry Coulby, president and general manager of the Pittsburg Steamship Co., said that it behooved the members to take care of the young men who were growing up and who would have to carry on the business a few years hence. A young man is supposed to look differently at a situation than the older men in the business. Large corporations had found it, he declared, extremely profitable to cultivate the social side of business. He added that the same thing would be true of the Lake Carriers and was even in favor of inviting the captains in to discuss affairs socially with them.

The morning session was unusually quiet and nothing was really done except to listen to the annual reports of President Livingstone, a digest of which will be found in another column. After Capt. Dennis Sullivan of Chicago, Capt. J. J. H. Brown of Buffalo and Capt. John Mitchell of Cleveland had been appointed as a committee to nominate the board of directors the meeting adjourned until afternoon.

WILLIAM LIVINGSTONE,
President.

LAKE CARRIERS

The afternoon session was largely given over to listening to addresses by Col. Charles E. L. B. Davis, government engineer with headquarters at Detroit, and Major W. L. Fisk, who is in charge of the chart work on the lakes. Col. Davis in his talk devoted the most of his time to a discussion of the present and contemplated improvements at Sault Ste. Marie. It is the ultimate intention of the government to build a third lock at the Sault and it was upon this theme that the Lake Carriers entered into discussion with him. The present plans for the third lock call for gates 70 ft. in width.

Mr. J. H. Sheadle of the Cleveland Cliffs Iron Co. called attention to the fact that his company is now building a vessel with a beam of 60 ft., which is 8 ft. greater than the usual freight carrier on the lakes. He was of opinion that someone would build a 12,000-ton ship within the next two or three years and that the lakes would probably see a 20,000-ton ship within twenty years. He admitted the advantages from the point of operation of a narrow gate to the canal but hardly thought that 70 ft. was wide enough.

Mr. Harry Coulby stated that ship construction was even now undergoing a great revolution on the lakes and he thought that new improvements should be projected upon such a scale so that a ship even of 75-ft. beam might be accommodated. He did not regard it as by any means impossible that such a ship would be built. Col. Davis in responding stated that the locks at the Sault had now accommodation for 60,000,000 tons per annum and that therefore he did not think

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the third lock would be something of the immediate future, but he was very glad nevertheless to know how the vessel men feel about its requirements.

Major W. L. Fisk discussed the chart work of the great lakes. The engineering corps has now issued a series of 102 charts, of which sixty-four are in colors. All the chart work of the corps has been transferred from Washington to Detroit and it is the intention to make this feature of aids to navigation as complete as it possibly can be made. He urged the owners of vessels to instruct their masters to report to the engineer's office any new obstructions discovered because the engineering corps were greatly aided thereby.

The new board of directors was then announced as follows: William Livingstone, G. A. Tomlinson, Edward Smith, T. T. Morford, J. C. Gilchrist, Harry Coulby, C. W. Elphicke, D. Sullivan, F. W. Smith, F. J. Firth, James Corrigan, C. A. Eddy, A. B. Wolvin, D. G. Kerr, H. A. Hawgood, J. H. Sheadle, John Mitchell, H. D. Goulder, J. E. Upson, G. L. Douglass, E. T. Evans and H. S. Wilkinson. The names of W. C. McMillan and T. F. Newman were on the board of directors as announced, but they were withdrawn later at their own request. They are the representatives of the passenger lines and while they are willing to contribute to the expense of the association in the matter of legislation and lights they do not feel that they ought to be bound by any labor clauses of the association. Their business is radically different from that of the bulk freight carrier, and especially so in the case of the Detroit & Cleveland Navigation Co. This company desires to begin the season as soon as navigation is open. Whatever business is lost on a passenger line in the spring is lost forever, because the traffic can be handled by rail. The same is not true of the ore and coal trades. If delayed it is not of necessity lost to the lakes. No attempt was made to fill the vacancies left by the resignations of Mr. McMillan and Mr. Newman.

J. H. SHEADLE,
Vice President.

The two new names on the list of the board of directors are those of Mr. G. A. Tomlinson of Duluth and Mr. H. S. Wilkinson of Syracuse, N. Y. The board of directors retired and elected the following officers, which are in each case re-elections: William Livingstone of Detroit, president; J. H. Sheadle of Cleveland, vice president; George A. Marr of Cleveland, secretary; George P. McKay of Cleveland, treasurer; Harvey D. Goulder of Cleveland, counsel. Executive committee: Wm. Livingstone, chairman; A. B. Wolvin, Harry Coulby, E. T. Evans, Edward Smith, H. A. Hawgood, J. C. Gilchrist and James Corrigan. The new name on the executive committee is that of Mr. James Corrigan of Cleveland.

The banquet in the evening was so excellently conducted that everyone who attended will always have a pleasant memory of it. The decorations were in red, carnations being the flower and candles, shaded with red globes, the illumination. After a most elaborate menu had been discussed President Livingstone announced that the banquet would be an annual feature and that it would be the aim of the association to have some of the most distinguished men in the nation as speakers. He then followed the line of Mr. Coulby's argument and stated that the social feature was being projected for the benefit of the younger men. Mr. Harvey D. Goulder was then introduced as toastmaster.

The first person called upon was Mr. T. T. Morford of Buffalo who very wittily stated that he was glad to know that the affair was projected for the benefit of the young men and as one of them would be glad to bear it in mind and say something at the next annual banquet.

Major Lansing H. Beach, lighthouse engineer, exhibited a most dry humor in his little talk. He stated that as an army officer he was not given to speaking and that his special division of work was very much like that of a doctor's, it was constantly being buried; that his special work, that of dredging, was a most thankless task, as after it was done it looked very much as it did before.

Mr. J. C. Gilchrist and Mr. G. L. Douglass of Buffalo spoke briefly after which Mr. Harold Jarvis sang. The carriers were much delighted with his powerful and vibrant voice and enthusiastically demanded an encore.

Mr. Archie Thomson of Cleveland made a very pleasing little talk in which he hoped that such affairs would promote better business relations.

Mr. G. A. Tomlinson of Duluth said that it was a rather difficult task for him to talk as in his country they served only one kind of liquor, and that was wood alcohol. They led the simple life in the northwest and that being unaccustomed to such fare it was impossible for him to eat a dinner, drink a dinner and then speak. Speaking of the younger men growing up, of whom he is one, he stated that they might, through the progress of the times, be more scientific than those whom they succeeded, but that they could not be more honorable.

Mr. Robert J. Dunham of Chicago entertained the banquet with an exceedingly humorous story.

Mr. Dennis Sullivan of Chicago, as one of the younger men, said that he would defer any further remarks until he was older.

Mr. J. H. Sheadle of Cleveland thought that the starting

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of these social gatherings was a splendid idea and he hoped that in the future they would be very fully attended.

Mr. Harry Coulby of Cleveland said that the Lake Carriers wanted to be fair and that all they ask in return is fair play. "If we can't get what is fair," he said, "we can fight until we get it." He then referred to the great growth of the country and the fact that over 2,000,000 tons of Lake Superior ore was exported last year in the form of steel. He said that eventually America was going to supply the world with ore and thought the time would rapidly come when 50,000,000 tons of ore would be brought down the lakes. He said he believed the lake business was only in its infancy. Twenty years ago Capt. Bradley saw the finish of lake trade and yet the lake trade of twenty years ago bears no analogy whatever to the same trade today. The great northwest is as yet an undeveloped territory. When it is developed the lakes will be its avenue of communication. Mr. Coulby predicted that within a very short time a 15,000-ton vessel would be seen on the great lakes.

Mr. E. T. Evans of Buffalo recalled the time when an 800-ton ship was considered enormous and yet people are now talking of the 15,000-ton vessel. He complimented the executive committee for the elaborate care which it had taken to entertain the members of the association.

Brief addresses were also made by Mr. J. C. Gilchrist of Cleveland, Mr. J. C. Evans of Buffalo, Mr. W. J. Westcott of Detroit and Mr. C. O. Jenkins of Cleveland and then the health of Capt. H. A. Hawgood of Cleveland, the absent member of the executive committee, was drunk standing.

President Livingstone then referred to the time when cotton was supposed to be the king of trade. Today iron and steel is king and there is one company in Pittsburg, the Carnegie Steel Co., whose tonnage exceeds annually the whole cotton crop of the United States.

Capt. J. J. H. Brown of Buffalo, Mr. W. M. Mills of Tonawanda, Mr. B. W. Parker of Detroit, Mr. Robert Gray of Detroit followed with brief talks and the banquet was brought to a close by everyone proposing a standing toast to Mr. A. W. Colton of Toledo, whom illness prevented from being present. Everyone then sang "Auld Lang Syne" and an occasion which was voted most joyous came to an end.

At Friday morning's session Mr. Harvey D. Goulder addressed the carriers on the subject of the proposed changes in the rules and regulations governing the inspection of steam vessels. Since the General Slocum disaster the Board of Supervising Inspectors has been driven by pressure, exercised by authorities higher than it, to amend these rules. The result is that the rules are more severe in certain instances than circumstances really warrant. Little distinction has also been made as to whether the regulations applied to passenger or freight vessels and the rules, if impartially enforced, could not do other than work a hardship. In point of fact some of them would probably do much mischief if literally interpreted. The Board of Supervising Inspectors is quite aware of the absurdity of some of the changes and has suggested that a general meeting be held in Washington jointly with the steamship lines to talk the subject over. President Livingstone, Mr. Harry Coulby and Mr. Harvey D. Goulder were appointed a committee to go to Washington and represent the Lake Carriers at the meeting. An account of their visit to Washington will be found in another column.

CAPT. GEO. P. McKAY,
Treasurer.

Mr. D. J. Keefe, president of the International Longshoremen, Marine and Transport Workers' association addressed the carriers on the general subject of labor. He said that their relations in the past has been quite satisfactory and hoped that they would continue so in the future. He believed that the day of the individual contract had gone by and that labor is hired as an army. He was prepared to furnish a guarantee that if a contract was entered into with his labor union this season as last it would be carried out not only in letter but in spirit as well. He earnestly desired trade agreements for various divisions of labor under his jurisdiction.

Major Lansing H. Beach then addressed the meeting upon the necessity of additional aids to navigation at various points and received a vote of thanks for his activities in this direction.

The association adopted a resolution urging congress to pay attention to the fact that the semi-centennial anniversary of the completion of the Sault Ste. Marie canal occurs next June. The resolution was as follows:

"Resolved: That the association approves the enterprise of holding a semi-centennial celebration in Sault Ste. Marie in June, 1905, on the completion of the first canal at Sault Ste. Marie, Mich., and that congress be requested to appropriate a reasonable amount of money to provide the expenses thereof.

"Resolved, also, That a tablet to the memory of Gen. O. M. Poe be erected and unveiled at that time."

The closing session on Friday afternoon was executive and at its conclusion the following statement was given out:

"As was expected, the question of labor and labor contracts was most prominently in the minds of the members in attendance. This subject was put over until this morning, when the matter was taken up in executive session, at which all the members were asked to express their opinion without reserve and the captains in attendance were requested to present their views fully and freely as a guide to the executive committee when they do in due course of time take up the matter for definite disposition.

"There developed a strong and surprisingly universal preference for what is known as the open shop idea.

"No definite action could be taken and the whole question was left as usual to the executive committee with the expressions above stated. No date has been fixed for the executive meetings."

The executive committee invited both owners, and certain masters that were present at the meeting, to express themselves freely upon the methods which had been employed during the past two years in dealing with labor. Nearly all of the masters declared themselves to be in favor of the open shop and a number of owners did likewise. Everything was left, however, to the executive committee and no instructions were given to it. The sentiment in favor of the open shop may therefore be regarded as merely an indication of the trend of opinion, but it is not likely to have any real bearing on the situa-

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tion this year. There are numerous complications in the way and it is more than probable that the executive committee will deal with the labor unions precisely as it has within the past two years. It has full power to do so, if it sees fit, and there is no reason to believe that it expects to do otherwise.

The work of filling the shipping office and letting the grain contract at Buffalo was left to the executive committee. No change is expected to be made.

THE PRESIDENT'S ADDRESS.

The president's address was as follows:

The board of directors, executive committee, president and officers of the association submit herewith their annual report as follows:

The objects and purposes of this association, as stated in the articles of association, are as follows:

1. To establish and maintain shipping offices for the convenient securing of seamen for vessels on the great lakes, their connecting and tributary waters.

2. To establish, maintain and procure the establishment and maintenance of aids to navigation, and improve and secure the improvement of channels, docks, wharves, loading and unloading and terminal facilities.

3. To establish and maintain, by contract or otherwise, such amicable relations between employers and employed as will avoid the public injury that would result from lockouts or strikes in the lake-carrying service.

4. To provide for the prompt and amicable adjustment of matters affecting shipping and the interests of vessel owners on the great lakes, and on their connecting and tributary waters.

HARVEY D. GOULDER,
Counsel.

In a very general way the extent to which your committees and officers have been able to carry out the purposes of the association are briefly set forth under the respective headings as follows:

RELATIONS BETWEEN EMPLOYERS AND EMPLOYED.

An agreement was entered into with the Marine Firemen, Oilers & Water Tenders' union providing for a slight reduction of wages from the scale in force during the season of 1903; twelve hours' notice before quitting; laying off of crews when boat is delayed in port to exceed three days. The question of laying up was also arranged so that vessel owners would not be committed to employing members of this union for such work, nor to pay a stipulated wage for such service, but would be free to employ such men and at such wages as conditions in the fall made expedient. Barge engineers were also eliminated from this contract.

The contract made with the Seamen's union eliminated the question of overtime; permitted the employment of barge engineers from whatever union they belonged to; permitted owners to lay off crews when delayed in port to exceed three days, and to make such arrangements for laying up and winter work as circumstances made expedient, as in the firemen's agreement.

The agreement with the Marine Cooks & Stewards' union eliminated the question of carrying porters on vessels, and the question of working under police protection on the boats, and provided that women cooks might be carried under certain conditions. A flat wage scale of $70 per month was provided for chief cooks and stewards, as against a scale of $66 to Oct. 1st, and $86 to the end of the season, as in the previous contract.

The contract with the Engineers' and Scoopers' unions were the same as in 1903.

The policy which determined the incorporation of the Lake Carriers' association endured a severe test and vindicated itself in dealing with the strike of the Masters & Pilots' association at the beginning of the season. In few words, that policy was to provide for stockholding membership, so that instead each year of soliciting membership of very busy men of affairs at a time when they were snatching the brief vacation that busy men are able to secure, the opposite should be true. That the vessel owner, recognizing the benefits from such an association and becoming a member of it, should continue a member without annual renewal of his subscription. Also to have a smaller executive committee who would, for that reason, be more responsible since provisions were made which required the attendance and the attention of the members of the committee and nearly unanimous action. Along with this, ample provision was made to secure promptly a very representative meeting, either of the directors or of all members as the importance of the occasion might require.

That all of the difference and difficulties in the business and between the owner and the men operating vessels could be removed by one effort and at one time was beyond the expectation of any person. It was the thought in incorporating that better working machinery would result, and that within a few years most of such difficulties can be removed, although it was, as must now be, recognized that the business is rapidly growing and will continue its growth in a manner which year by year surprises the most thoughtful men connected with it.

At the beginning of the season of 1904 we were confronted with very unpromising business conditions which, coupled with the fact that it was the year of presidential election, united to compel a pessimistic view for the year. This was especially true as regarded the lake carrying trade by reason of the expected dullness in the iron and steel industry of the country, and the fact that much ore brought down in 1903 had not been used. Predictions were freely made that not more than twelve million tons of ore would be shipped in the season of 1904. Before these conditions had so sharply developed arrangements had been made which were thought best calculated to avoid any difficulty with the crews of vessels, the conditions apparently requiring the dealing with the representatives of the various unions which had reached the

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zenith of their influence. We were then confronted with the proposition that our masters, the executive personal representatives of the owners, were in a union with the mates, and that instead of dealing as had been the invariable practice throughout all the history of the lake marine with the masters individually, we found that the owners were expected and were notified that they must deal through the Lake Carriers' association in all matters in respect of masters of their ships with a committee of the union, or "association," as it was called.

Confronted with this, your executive committee accepted the situation, and endeavored to deal in that manner, although the committee protested that it was an improper method, that the master is solely the representative of the owner and the vice principal in all matters touching not only matters of navigation, but much business connected with the ship, that all owners should be free, and every master should be free to deal together. It was pointed out that no system of governmental civil service and no system in the conduct of business had regarded it permissible that men standing in such a relation to the principal should be employed, or their duties regulated except between the immediate parties themselves.

GEORGE A. MARR,
Secretary.

Nevertheless the association included in its membership so large a majority of the men holding licenses from the government and whose places could not be supplied except by other licensed men, and the Masters & Pilots' association was so insistent, to the extent even of fining and making threats of expulsion against members who would even visit the office of their owners, that your committee, as before stated, took up the matter of some working arrangement.

It was speedily found that this was impossible. The whole proposition had no basis in experience, nor could be found any principle of business or economics which could justify or make practical an arrangement along these lines. That the vice-principal, the master, the personal representative of the owner, clothed with much of the power and authority of the owner as his vice-principal, should be subject to regulations of a body of men on shore, out of touch with the business of the owner, was in itself sufficient to make such a plan impracticable. When there was added to this the other element that the controlling and governing authority in the body which would direct the conduct of the masters, lay with the mates on whom the masters are required to depend in their executive work on ship, the fallacy attending any such arrangement was emphasized.

It is creditable to your executive committee that in order, if possible, to avoid difficulty they were willing to consider and exhaust every argument and endeavor to find a means of dealing with the question which would avoid the very serious controversy which followed.

So when the Civic Federation of Cleveland tendered its good offices in the matter, the committee were willing to and did appear before that body, not by any means putting the decision of your matters out of their own hands or agreeing to abide decision by way of arbitration, but in order that after discussions between the opposing forces, which were daily growing more intense, both sides might have opportunity to go before perfectly neutral persons of high standing in the community, of approved judgment, and who, it was hoped, might be able to make some recommendations which would alleviate the situation. Except as furnishing to the vitally interested shipping and general public through such a disinterested and eminent channel something of the claims of the parties and of the merits of the controversy, this effort failed; because the underlying principles which have been alluded to made it impossible to deal with the situation. That such men as composed that committee of the Civic Federation were unable to present a working plan, resulted only from the fact, and is a very clear example of the truth, that in matters where fundamental principles are involved there can be no middle ground for compromise.

The method provided in our organization was followed for getting together a large number—indeed, a considerable majority—of the members representing every shade of interest among our membership. A meeting was held in the assembly room of the Colonial Hotel at Cleveland, and the questions involved received the consideration which their importance demanded. The meeting continued through two days. Many of the members came long distances, setting aside other business at great inconvenience to themselves. The effort was to obtain the fullest and freest expression and nearly every member present expressed his sentiments. The result was unanimous that it is impossible to operate our ships if the masters are in an association governed by rules or requirements of a lodge or committee or association. Also, it was the expression that we should rather not attempt to operate the ships than to submit them to such regulations, and that this impossibilty of successful management would affect the master as seriously as the owner, making it impractical from both sides.

It was thought that abundant law and precedent existed for securing cancellation of licenses of men who were banded together to prevent the operation of the vessels. It was much urged that proceedings to this end should be begun and vigorously prosecuted. It is to the credit of those who were serving you at that time that a cooler, and, as the event shows, a wiser counsel prevailed, and the aid of the law in this respect was not invoked. I may say that an important reason for this counsel and such non-action was that the elements of the question made it of equal importance to the owners and the licensed officers who should, by joint effort, endeavor to bring about the best and most efficient conditions on our vessels as being the best state for both parties, and in which neither can have a greater interest than the other.

The contest was on. There was much feeling. From the

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reports which reached us we were compelled to believe that misrepresentations were made to the masters and pilots through some of those who were their counsellors and guides; but it would serve no useful purpose to go into the details of occurrences in what proved to be a very strenuous contest. Suffice it to say that about June 14 the strike came to an end because, and simply because, its further prosecution could not be justified on any reasonable ground, and ships then went rapidly into service.

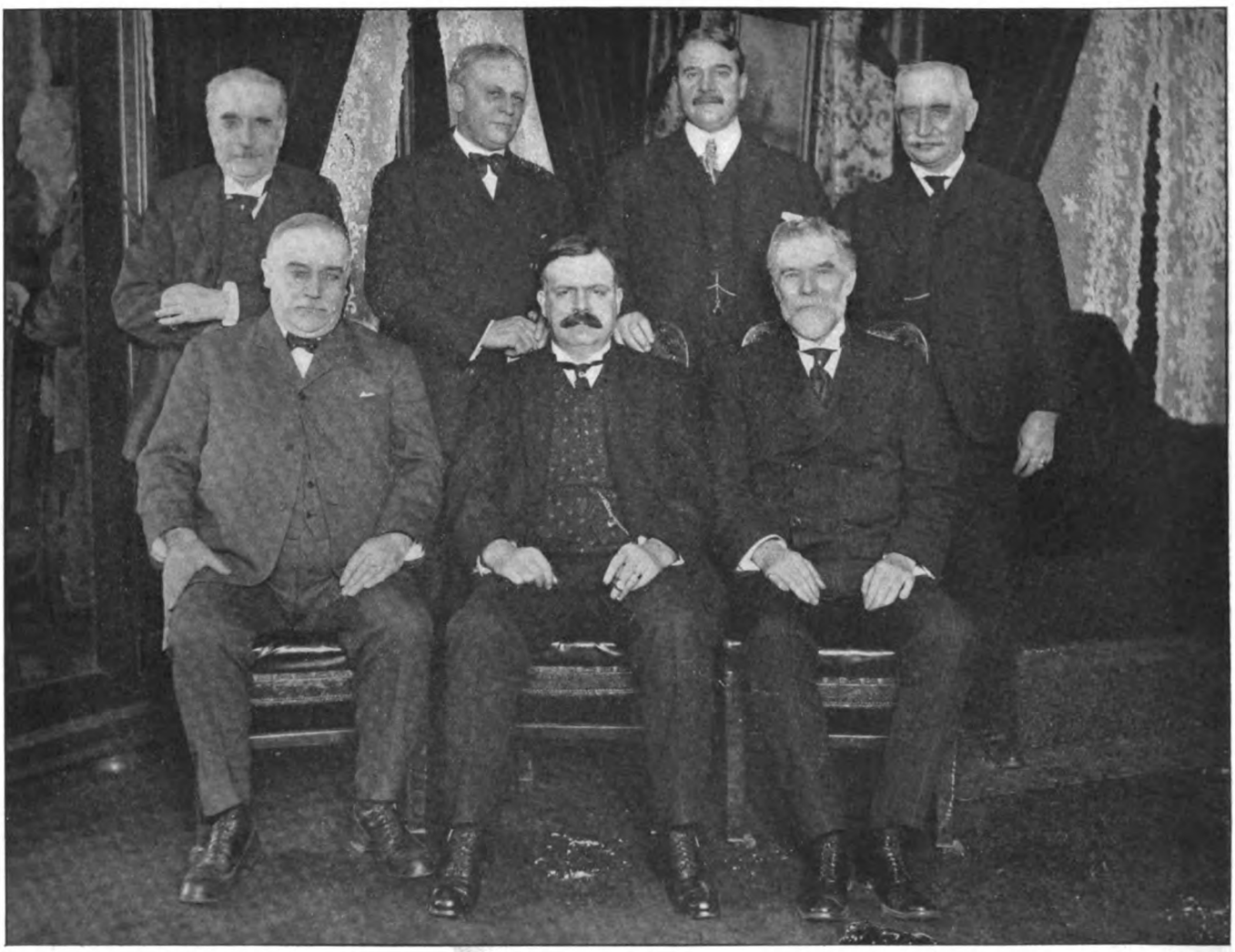
"It is an ill wind that blows nobody good." While the strike was costly to everyone concerned; while it at the time engendered very much misunderstanding and consequent bitterness, yet it remains to be said that the thorough consideration of the whole subject opened the eyes of the owners, the masters, the mates and all licensed officers to the fact that abuses had been permitted to come into the business of operating our ships. One which was the most striking was the tendency which had been developing of operating ships too much from the shore. Just as the owners saw the incongruity of having a number of men in an association regulate the conduct of the masters and other licensed officers under general rules upon some dead level which might or might not regard the needs and business conditions of the owner and the ship, so were the owners impressed as the result of this study that they should, so far as possible, separate those matters which must be attended to in the office from those which relate to the executive duties of the masters, engineers and mates, whom they employ on their ships, and who are required to act from hour to hour upon their judgment at the moment and be responsible for reasonable judgment and efficiency and results.

President Livingstone then discussed very ably a number of subjects to which attention will be given in the next issue of the Review.

MEMBERS IN ATTENDANCE.

Cleveland—Harry Coulby, J. H. Sheadle, Arthur Hawgood, Harvey D. Goulder, Frank S. Masten, J. C. Gilchrist, Joseph A. Gilchrist, Albert J. Gilchrist, C. P. Gilchrist, H. A. Kelley, G. W. Cottrell, C. O. Jenkins, Henry Steinbrenner, Chas L. Hutchinson, W. H. McGean, John M. Mulrooney, Wm. Gerlach, Geo. P. McKay, John Donaldson, W. H. Donaldson, N. J. Boylan, Capt. John Mitchell, John F. Wedow, Oliver W. Upson, J. W. Current, C. C. Canfield, James Corrigan, A. L. Rumsey, J. H. Jenks, L. P. Smith, John T. Kelley, W. E. Chapman, Geo. Randerson, Capt. C. L. Ennes, John F. Manuel, M. Mulholland, J. W. Farley, Capt. F. A. Fick, W. R. Bartlett, C. H. Sinclair, Frank G. Seither, W. H. Teare, C. H. Prescott, J. N. Hahn, C. A. Krauss, Jr., Mark Hanlon, R. M. Lee.

Chicago—C. W. Elphicke, D. Sullivan, Arthur Sullivan, Thomas J. Prindiville, Scott Dow, A. C. Helm, H. A. Foss, R. J. Dunham, E. J. Fleming, O. G. Orr, Wm. A. Prime, Edward Hines, Capt. Walter Hamilton, J. A. Calbick, J. G.



PROMINENT MEMBERS OF THE LAKE CARRIERS' ASSOCIATION.

E. T. Evans. J. H. Sheadle. H. D. Goulder. Edward Smith.
J. C. Gilchrist. H. Coulby. William Livingstone.

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Keith, Charles Wallace, W. W. Watterson, C. A. West.

Buffalo—Edward Smith, E. T. Evans, J. C. Evans, J. J. H. Brown, J. B. Hall, L. P. Goodale, M. M. Drake, T. T. Morford, E. T. Douglass, W. J. Douglass, J. T. Keith, T. G. Rodgers, Frank Perew, W. A. Maytham, Junius S. Smith, John J. Boland, T. W. Kennedy, John J. Manion, John J. Joyce.

Detroit—Wm. Livingstone, C. B. Calder, Frank E. Kirby, A. A. Parker, Waldo Avery, Richard Cusen, L. C. Waldo, Robert Gray, J. W. Wescott, Henry Wineman, Jr., Timothy Hurley, John Walsh, W. S. Duncan, Antonio C. Pessano, John A. Utsdell, Jr., Walter Campbell, M. W. Humphrey, Capt. Enos J. Burke, Capt. R. W. England, Byron Whitaker, C. W. Kotcher, Capt. John C. Ivers, Capt. A. J. McKay, C. A. Chamberlain, C. W. Nestor, H. L. Wilton, John O'Teagan, Joseph King.

Milwaukee—H. J. Pauley, Capt. A. B. Davis, F. W. Smith, Samuel Neff, Sidney Neff, John Wanwig, Capt. Henry Leisk.

Duluth—G. A. Tomlinson, D. T. Helm, Alex. R. Sinclair, C. H. Weeks.

From several other ports—H. E. Runnels, A. M. Carpenter, Henry McMorran, Port Huron; Thomas Cheney, Ashtabula; L. S. Sullivan, John Craig, W. S. Brainard, J. P. Nagle, Toledo; John Mullen, Henry Duff, Charles Hackett, Harry Hackett, Amherstburg; James Davidson, O. W. Blodgett, W. H. Sharp, Wm. E. Pierce, Bay City; Charles T. Little, John Lozen, Mt. Clemens; A. W. Comstock, Alpena; A. Hinkelman, Henry Lester, Marine City; A. M. Smith, Algonac; Capt. John C. Garey, Capt. James Madigan, Capt. W. E. Doneley, Geo. W. Kean, Saginaw; G. W. Parker, W. H. Scott, J. A. Ward, Wm. Smith, Marine City; W. L. Martin, Cheboygan; W. E. Rice, Harbor Beach; H. G. Kendall, Marysville; Geo. Maul, Port Clinton; Chas. Beyschlag, St. Clair; H. H. Lockwood, E. E. Koch, Sandusky; W. J. Lynn, Wm. Lynn, George Lynn, Port Huron; J. C. Siegel, Erie; Daniel E. Lynn of National Lead Co., New York; Thomas Price, Midvale Steel Co., New York; L. R. Wells of F. G. Leiter Steel Forging Co., Chicago.

LUMBER CARRIERS' ASSOCIATION

The annual meeting of the Lumber Carriers' association was held at Hotel Normandie in Detroit last week. The labor situation was thoroughly discussed at the meeting but no action was taken upon it other than to refer it to the board of managers. The purpose of this was doubtless to be both guided and supported by what the Lake Carriers' association would do. Officers were elected as follows: President, Edward Hines, Chicago; first vice president, W. H. Teare, Cleveland; second vice president, J. A. Calbick, Chicago; third vice president, R. C. Brittain, Saugatuck; secretary and treasurer, H. E. Runnels, Port Huron. The board of managers which will in function correspond with the executive committee of the Lake Carriers' association is as follows:

Board of managers: F. W. Gilchrist, Henry McMorran, W. H. Teare, H. E. Runnels, O. W. Blodgett, Edward Hines, J. A. Calbick, C. H. Prescott, Jr., W. H. Sharp, V. F. Mashek, Chas. Foster, W. D. Hamilton, Sidney O. Neff, J. C. Garey, C. H. Weeks, A. R. Sinclair, J. J. Boland, E. L. Fisher, J. W. Robinson, L. S. Sullivan, A. W. Comstock, H. L. Wilton, C. W. Kotcher, C. T. Williams, J. C. Pringle, J. E. Fribery and George G. Oliver.

Finance committee.—Edward Hines, Chicago; E. L. Fisher, Cleveland; J. A. Calbick, Chicago; W. H. Teare, Cleveland; O. W. Blodgett, Bay City, Mich.

Committee on legislation.—Henry McMorran, Port Huron, Mich.; V. F. Mashek, Chicago; J. W. Robinson, Tonawanda, N. Y.; S. O. Neff, Milwaukee; George G. Oliver, Michigan City.

Committee on loading.—Edward Hines, Chicago; J. A. Calbick, Chicago; Alexander R. Sinclair, Duluth, Minn.; O. W. Blodgett, Bay City, Mich.; H. E. Runnels, Port Huron, Mich.; C. H. Weeks, Duluth, Minn.; J. O. Nessen, Manistee, Mich.; L. S. Sullivan, Toledo; J. J. Boland, Buffalo; R. C. Brittain, Saugatuck, Mich.; J. C. Pringle, St. Clair, Mich.; C. W. Kotcher, Detroit; S. O. Neff, Milwaukee.

Committee on unloading.—W. H. Teare, Cleveland; C. H. Prescott, Jr., Cleveland; L. S. Sullivan, Toledo; E. L. Fisher, Cleveland; J. A. Calbick, Chicago; C. W. Kotcher, Detroit; Edward Hines, Chicago; H. L. Wilton, Detroit; Henry McMorran, Port Huron, Mich.; C. T. Williams, Cleveland; Charles Forster, Milwaukee; V. F. Mashek, Chicago; John W. Robinson, Tonawanda, N. Y.; J. O. Nessen, Manistee, Mich.; W. H. Sharp, Bay City, Mich.; J. J. Boland, Buffalo; W. D. Hamilton, Chicago; O. W. Blodgett, Bay City, Mich.; S. O. Neff, Milwaukee; J. C. Garey, Saginaw, Mich.

Committee on towing.—W. D. Hamilton, Chicago; J. A. Calbick, Chicago; E. L. Fisher, Cleveland.

Committee on employment of union help.—W. H. Teare, Cleveland; C. W. Kotcher, Detroit; J. O. Nessen, Manistee, Mich.; C. H. Prescott, Jr., Cleveland; W. D. Hamilton, Chicago; O. W. Blodgett, Bay City, Mich.; J. A. Calbick, Chicago; A. W. Comstock, Detroit; J. C. Pringle, St. Clair, Mich.; R. C. Brittain, Saugatuck, Mich.; S. O. Neff, Milwaukee; George G. Oliver, Michigan City, Ind.

Mr. Edward Hines of Chicago who was elected president is a very prominent figure in the lumber trade. He is president of the Edward Hines Lumber Co. of Chicago which operates the largest fleet of lumber carrying craft on the lakes. His career has been especially rapid. His first position was as tally boy for Fish Brothers, afterwards working for the S. K. Martin Lumber Co. at $4 per week. He served in various capacities for that company and organized in 1892 the Edward Hines Lumber Co. and was elected its president, although at that time he was only twenty-seven years old. About 90 per cent of the lumber tonnage of the lakes is in the Lumber Carriers' association.

DREDGE OWNERS' PROTECTIVE ASSOCIATION

The annual meeting of the Dredge Owners' Protective association of the great lakes was held last week at the Hotel Cadillac in Detroit. The labor question was, of course, discussed but no action was taken upon it as it is as yet somewhat early to deal with labor. The dredge owners had no trouble at all last year with labor except some minor trouble with the firemen which was later adjusted. The owners, however, are feeling rather badly over the arrival of the government suction dredge Burton on the lakes as they believe this action on the part of the government to be an unwarranted interference in private contract work. The following officers were elected: W. A. Lyndon of Chicago, president; C. Neiderman of Milwaukee, vice president; C. J. Connell of Chicago, secretary and treasurer; F. B. Dougherty of Duluth, manager; executive committee, J. A. Smith, Cleveland, chairman; P. N. McNaughton, Buffalo; T. C. Lutz, Chicago; S. O. Dixon, Milwaukee; Wm. Clifford, Duluth.

LICENSED TUGMEN'S PROTECTIVE ASSOCIATION

The annual meeting of the Licensed Tugmen's Protective association was held in Detroit this week. The attendance was excellent. A committee was appointed to arrange the wage schedule for the coming season and this committee will meet with the officials of the Great Lakes Towing Co. Capt. James Walsh of Duluth was elected president.

Officers were elected as follows: Capt. James Walsh, Duluth, president; Capt. Thomas V. O'Connor, Buffalo, first vice president; Owen McAntee, St. Joseph, second vice president; Stephen P. Hogan, Erie, third vice president; H. H. Vroman, Buffalo, grand secretary; Peter Gagnon, Two Rivers, Wis., grand treasurer.

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DEVOTED TO EVERYTHING AND EVERY INTEREST CONNECTED OR ASSOCIATED WITH MARINE MATTERS ON THE FACE OF THE EARTH.

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JANUARY 19, 1905.

Senator Frye, who has been ill at his apartments for sometime, braved a sleety rainstorm on last Thursday to attend a meeting of the senate commerce committee of which he is chairman for the purpose of reporting out the Merchant Marine Commission's shipping bill, and he succeeded in his purpose, thus setting at rest the silly rumor that he opposes the bill. The house merchant marine and fisheries committee on Tuesday of this week also reported out the same bill, and it now rests upon the calendars of each branch of congress from which it may be called at any time and passed. This prompt action on the part of each of the congressional committees to which the shipping bill was referred on Jan. 4, shows that a determined purpose exists to place the measure upon our statutes, if possible, at the present session. It is no secret that every republican member of each committee heartily favors the shipping bill. The democrats only oppose one of the four important features of the bill, and Senator Martin of Virginia has refused to join in any expression whatever of disapproval of the measure. Even the democrats who oppose the single subvention feature of the bill—the part that provides $5 per gross ton per annum to freight carriers, not engaged in carrying the mails—favor a much more protective and drastic method of building up our shipping—the policy of discriminating duties. This leaves the foreign shipping interests, their agents and their intriguers very much in the air as to how to effectually apply their secret methods of opposition and obstruction to the passage of the bill.

Never in the history of the effort to secure congressional aid for the upbuilding of our merchant marine has there been such unanimity in congress in favor of a protective measure, and never before has there been such eloquent silence in congress regarding the old free trade free-ship method, a policy that the democrats, apparently to a man, have abandoned utterly, a policy, likewise, that republicans have resolutely and always opposed. No wonder that the friends of American shipping take heart over the prospect, and no wonder that the agents of the foreign shipping interests are in a blue funk over that same prospect. The minority report subscribed to by three of the four democratic members of the Merchant Marine Commission advocates a policy that is far more dreaded by the foreign shipping interests than the pending bill is dreaded. The only objection to the discriminating duty policy, an objection that both the democrats as well as the republicans regard as fatal to its effective operation, is their unanimous agreement that it is impracticable to place, even temporarily, a small duty upon the 47 per cent of our imports that are now on the free list. The more opposition, therefore, that the foreign shipping agents succeed in stirring up against the shipping bill the greater the danger of the adoption of some practicable discriminating duty bill. No wonder the foreign shipping representatives and their free trade allies are in despair.

That, so far as the Merchant Marine Commission, which was composed wholly of senators and representatives in congress, represent the views of their colleagues, congress is unanimous in favor of, (1) adequate pay for ten new American mail steamship lines to as many different points, (2) the establishment of an effective reserve of naval volunteers, (3) a substantial increase in our tonnage taxes, (4) a rebate of 80 per cent of these tonnage taxes to such American vessels as carry American boys and educate them in seamanship and engineering, is a remarkable change in congressional sentiment, a change due entirely to the thorough work of the Merchant Marine Commission in eliciting in every part of the United States opinions as to the best method by which to build up our shipping in the foreign trade. The provisions just recited fail to include any aid or encouragement to freight vessels, sail and steam, not engaged in carrying the mails, and it was in dealing with this single, although important feature, that the first and the only disagreement arose between the republicans and democrats on the Merchant Marine Commission. The democrats could not bring themselves to the point of agreeing with their republican colleagues in providing for the payment of a fixed sum of $5 per gross ton to sail and steam vessels engaged for twelve months in each

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year in the foreign trade and carrying increasing proportions of naval reserve volunteers, although the democrats are willing, through the more protective policy of discriminating duties, to extend the aid of the government to this class of vessels.

The significance of these developments have, so far, utterly failed to impress the country at large, but, nevertheless, they are portentious. They show quite unmistakably that congress, responding to the overwhelming demands of the American people for an American merchant marine, is approaching the consideration of the methods by which to establish American shipping with less partisan and infinitely more national sentiment than has animated them since the days of Jefferson and Madison, a century and a quarter ago. Moreover, this change of sentiment, this unity of purpose, for the moment obscured as it is by the slight disagreement as to details to which we have adverted, serves notice upon the whole world that the determination of the people of the United States to have a merchant marine of their own, home-built, officered and manned by American citizens, is upon the eve of successful accomplishment. To be sure the short session suggests possibilities of opposition in the senate that may defer until the next congress affirmative action upon the pending bill, but there is no other fact that in any way suggests delay in the enactment of this measure. Senator Bailey of Texas, upon whom the opposition is looking for support in opposition to the measure, believes that the democrats have got to do something for American shipping; he also admits that dearer-built American ships cannot profitably compete with cheaper-built foreign ships; and he also concedes that the plan of allowing our people to register foreign-built vessels as American, which he might personally prefer, cannot be adopted because it is opposed by many democrats and all of the republicans, in addition to which it has been shown by the records of the Merchant Marine Commission that Americans would not place the foreign-built vessels they own under American register for the foreign trade without some form of government aid by which to enable them to meet the higher expense of their operation under our flag.

The rapid increase in the export trade of the United States via our Gulf ports that drain the most fertile portions of the United States, the momentous developments sure to immediately follow the opening of the Panama canal in which our Gulf ports and the country naturally tributary thereto will participate in, and the recognition of the requirements of our Gulf ports in the report of the Merchant Marine Commission and in the provision in its bill for the establishment of four steamship lines radiating from our Gulf ports to as many different foreign points where the opportunities for the creation of new and wider markets for American products are most promising, make the democratic members of congress unusually chary in their opposition to the shipping bill for the enactment of which boards of trade and chambers of commerce in Gulf ports are already clamoring. Indeed, it is but true to say that many democrats, perfunctorily opposing the pending bill because they imagine that it goes contrary to the principles they have advocated all their lives, are secretly hoping that it will be put through congress. The business sentiment of the south is almost wholly in favor of the enactment of some such measure as that now pending, and their representatives in each branch of congress realize this. On this account they will not oppose, although they may not vote for, the bill. So moderate are the provisions of the bill that not a few republicans fear that it may not accomplish the purpose of its enactment, but our ship owners are willing to prove to congress that many new steamship lines and large fleets of new ships will be established if the bill is enacted in its present form. The chairmen of the senate commerce and the house merchant marine and fisheries committees are receiving many letters from American vessel owners who say they will build new tonnage to engage in the foreign trade, if the bill is passed as introduced.

Fear has been excited that the passage of the pending shipping bill will increase ocean freight rates. This fear is quite groundless. The creation of new ships, additional competitors for the carrying of our foreign commerce, must cause a reduction in freight rates. However low present ocean freight rates are, in order for new American ships to secure a share of the carrying they must reduce their rates below existing rates or else the foreign vessels will continue to do the carrying. Again, as the bill limits the benefits of the bill to ten years only on each different bill, it must be obvious that only the most modern, the most up-to-date, the most economical ships will engage in our foreign trade after the lapse of the first ten years under the bill. These new ships will enjoy lower insurance rates and, being built always on the most economical lines, will tend to permanently reduce freight rates. Producers in the middle west should have this truth driven home to their minds, that increased fleets of American ships offering in competition with foreign ships for our foreign carrying will surely reduce and keep permanently reduced the rates of ocean freight carrying. The more ships there are to do the carrying the lower the freight rates will fall.

Finally, the democratic members of the Merchant Marine Commission know that during their investigations the discriminating duty policy seemed to be the most favored, and it was the policy that seemed most likely to command their unanimous support in the preparation of their report and the bill to carry into effect their recommendations. But when it was agreed that no duty, discriminating or otherwise, could be permitted upon our imports now on the free list, and that no bill could be effectual in operation that left this 47 per cent of our imports untouched, and they had all agreed that a discriminating duty bill was therefore impracticable, their republican colleagues devised a measure that commanded their support in every particular save one—that commanded the support of one democrat in its entirety. What is there to justify the fear that such a bill, so supported, and so moderate and popular in its provisions, will not pass at once?

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MARINE BOILER REGULATIONS

Secretary Metcalf of the department of commerce and labor held an important hearing on Monday of this week with various interests associated with ship construction and navigation in a joint consideration of the new rules and regulations governing the inspection of steam vessels. These new rules and regulations cannot become operative until approved by the secretary. It is the purpose of Secretary Metcalf to present all the briefs to the board of supervising inspectors which meet in annual session at Washington this week. It will probably require several weeks for the inspectors to thoroughly digest them and to make modifications for the secretary's approval.

One of the principal speakers at the meeting Monday was Col. E. D. Meier of the Heine Safety Boiler Co., New York, who appeared as the representative of the American Boiler Manufacturers' association. In a general way he commended the arrangement of the proposed regulations relative to boilers, expressing the opinion that it would be found much easier under the new plan to ascertain just what regulations must be complied with. His first protest was against rule 1, section 1, which requires that every iron or steel plate intended for the construction of boilers to be used on steel vessels shall be stamped by the manufacturer in at least five places. He declared that the imposition of such a regulation would work an unnecessary hardship upon the boiler manufacturer, as some plates are so small that it would be impossible to stamp them five times. Col. Meier said that he presumed the rule was intended merely to give assurance that after the plate had been manufactured into a boiler at least one stamp should show plainly. He thought that not more than two stamps would be necessary to insure this result.

The speaker next directed attention to section 6 of rule 1 which stipulates that inspectors shall visit places where marine boilers are being constructed as often as is necessary for the purpose of ascertaining and making a record of the stamps upon the material, its thickness and quality, except when the material had been tested at the mills. He pleaded in this instance for hard and fast rules of universal application. Not unfrequently material approved in one district had been rejected in another and he thought that such a circumstance should not occur.

Taking up section 7 of the same rule which governs the testing of iron and steel plates Col. Meier excepted to the requirements that there should be taken from each plate four test piece, two for the tensile test from the diagonal corners and the other two for the bending test from the other diagonal corners. He explained that if such a plan were followed the manufacturer would find it virtually necessary to make each place 4 in. wider involving additional weight of plate which would be a matter of expense to some person. Col. Meier also made emphatic objection to the stipulation of section 8 of rule 1 which specifies that no plate made by the acid process shall contain more than 0.06 per cent of phosphorus and 0.04 per cent sulphur and no plate made by the basic process shall contain more than 0.04 per cent of phosphorus and 0.04 per cent of sulphur. He asked that no discrimination be made between the two processes.

Attention was next directed to the provisions relative to the requirements in tensile strength and in the discussion which precipitated Col. Meier was warmly supported by other boiler manufacturers present. There was general belief that the upper limit of 75,000 lbs. per square inch of section when tested is too high and will result in giving brittle steel. Col. Meier declared that a tensile strength of 70,000 lbs. should be the outside limit of the plate not touched by fire and that the outside shell of externally fired boilers should not be more than 60,000 lbs. Declaration was made that section 4 of rule 2 which provides in detail for riveting is not in accordance with the best American practice and should be remodeled. Modification was also suggested in the case of section 19 of the same rule which specifies that all copper pipe subject to pressure shall be flanged over or outward. Section 13 of rule 2 which makes provisions for the testing of steel tubes was declared to be excellent but attention was called to the fact that no provision was made regarding iron tubes. Col. Meier contended that the need for such a test was far greater in the case of iron tubes than in the case of steel, since during the past ten years steel tubes have steadily improved in quality whereas iron tubes have as steadily deteriorated.

Capt. James Rees of James Rees & Sons Co., Pittsburg, made an exhaustive presentation with reference to the requirements of boilers for steamboat service on the rivers of America emptying into the Gulf of Mexico. One of the points was against the compulsory use of the steel rivet. He declared that the heads of these rivets are very liable to come off, the work of the hand hammer so changing the character of material as to render it unfit and unsafe, and he cited in proof the relative difficulty of removing properly driven iron and steel rivets respectively. Mr. Rees declared that the boiler plate manufactured during the years from 1879 to 1894 was superior to the present day product because the tensile strength was lower.

Mr. Fletcher, representing the W. & A. Fletcher Co., Hoboken, N. J., pointed out that the present regulations made stipulation only regarding the single and double riveting and suggested that inasmuch as in the manufacture of the large Scotch boilers now turned out triple rivet joints are frequently employed, it might be advantageous for the manufacturer to have equally specific standards to follow in such cases. Supervising Inspector General Uhler explained that the board of supervising inspectors had prepared the complete formula governing this which it was proposed to enact into law. Secretary Metcalf suggested that it might be well to prepare copies of this proposed measure and submit it to the various boiler manufacturers of the country for their opinion.

Vessel owners who were present objected to the following provision of section 5, rule 1: "Plates may be tested and inspected at the mills for repairs to marine boilers or to be carried in stock and such plate or plates shall have a separate record of test report in duplicate for each plate so tested, one report to be furnished through the supervising inspector to the local inspectors of the district in which the boiler manufacturers using the plate is located, and the duplicate report shall be furnished to the boilermaker who shall transmit the same to the purchaser of the material that is represented by said report. The purchaser shall deliver the same to the local inspectors at the first inspection of such boilers."

Mr. Clyde of the Clyde Steamship Co. and other prominent vessel owners objected very strenuously to the responsibility placed upon them by the necessity to hold and produce on such short notice such documentary evidence relative to each repair job done upon their boilers.

Secretary Metcalf explained at this juncture that all rules relative to boilers had been referred to a board of steam engineering officers of the navy. This in turn brought forth protest on the ground that naval practice ought not to be applied to the merchant marine. Supervising Inspector General Uhler explained that the only purpose of the new rule allowing repair and stock plate to be inspected at the mill was to facilitate the repairs upon boilers in active service. It was formed especially to meet conditions in western rivers where serious inconvenience would be occasioned if they had to wait three or four weeks for inspection.

The vessel owners of the great lakes engaged in the ore carrying trade were well represented by Mr. Harry Coulby, president and general manager of the Pittsburg Steamship

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Co. Mr. Coulby spoke very decidedly against the proposed compulsory installation of a donkey boiler on every freight carrying steamer. He explained that by reason of the almost wholly steel construction of the modern freighter the question of fire on these boats is virtually eliminated and that there is no need whatever for a donkey boiler which is to be installed simply as an added safeguard against fire. He thought that lake boats should be excepted from this provision. Mr. Coulby also vigorously opposed the provision in the new regulations which requires bulkheads at intervals not greater than one-fifth the length of the ship. He explained that to enforce any such requirement in the case of lake freighters would make the holds of these vessels look like egg crates and then explained the peculiar construction of lake cargo ships and the necessity of open holds unimpeded by bulkheads. This construction is, of course, to facilitate loading and unloading. Finally he opposed any hard and fast rule for arbitrarily fixing the size of a vessel's crew, explaining as an illustration that the new vessels of 10,000 tons capacity now building for the Steel Corporation will actually require less of an engine crew than some of the older vessels of far less carrying capacity. Moreover, he did not think that the stringent regulations governing passenger steamers should apply to the lake freighter which carries no passengers at all, but has provision for caring for a few guests of the owner.

Mr. Harvey D. Goulder of Cleveland, counsel for the Lake Carriers' association, spoke along the same lines as Mr. Coulby. He ventured the opinion that the proposed requirements relative to a record of plate used in repair work would work an unwarranted hardship. He also took a decided stand against the donkey boiler and other provisions which would destroy the efficiency of the lake carrying fleet.

The representatives of the passenger lines appeared before the secretary at the same time. They had surprisingly little objection to make to any of the new provisions for safeguarding life but thought that where the present equipment was adequate, even if it were not standard, it should be permitted to be retained on board. To discard present equipment every bit as serviceable as the new equipment was like throwing away good material and the passenger lines did not feel as though they should be compelled to do so. As for future equipment they manifested perfect willingness to buy that prescribed by the board and thought the standardization of it a good thing for the passenger lines of the country. It was agreed by all that the use of granulated cork preservers should be dispensed with. Mr. Harvey D. Goulder, represented the lake passenger lines and submitted a brief in their behalf. The entire subject goes back to the board of supervising inspectors for further consideration and it will be several weeks before they go into effect.

MARINE ENGINEERS IN SESSION

The Marine Engineers' Beneficial association is holding its annual meeting in Washington this week. It is not expected that any change will be made in the officers whose services have proved quite satisfactory throughout the year. Information from Washington is to the effect that the wage schedule was discussed by the association and informally was presented to President Wm. Livingstone, Harry Coulby and Harvey D. Goulder of the Lake Carriers' association who happened to be in Washington on other business. Nothing could be done as the subject is one which will have to be taken up by the executive committee of the Lake Carriers' association. It is known, however, that lake engineers have manifested some dissatisfaction with their earnings last year though the basis upon which they worked was adopted at their own suggestion. There is some talk of seeking an advance for the present year.

Officers were elected as follows: F. A. Jones, San Francisco, president; C. W. Robinson, Washington, first vice president; Evan I. Jenkins, Cleveland, second vice president; George A. Grubb, Chicago, secretary; Albert Jones, Detroit, treasurer; W. F. Yates, New York; W. D. Blancher, Buffalo, and George F. Keating, Boston, advisory board.

ANNUAL MEETING NATIONAL BOARD OF TRADE

The National Board of Trade is holding its thirty-fourth annual meeting in Washington this week. Col. J. J. Sullivan of Cleveland is the president of this organization. The Board of Trade under the energetic leadership of Col. Sullivan has become an organization of great power and is endeavoring to vitalize a number of the country's leading industries. Among the speakers this week was Mr. Harvey D. Goulder, president of the Merchant Marine League of the United States, who spoke eloquently for the upbuilding of the merchant marine in the foreign trade. Resolutions favoring congressional action on behalf of the merchant marine were adopted by the board and an extended report of the meeting will be given in the next issue of the Review. The National Board of Trade is composed of commercial organizations from all of the important cities of the United States and accordingly exerts an influence of great power.

FORECASTING THE FREIGHT MARKET

While it is a little early to talk of the freight situation on the great lakes for the coming season it is interesting to note that in a report from Buffalo vessels have been chartered to deliver ore to Tonawanda from the head of the lakes at 90 cents. This is considerably better than the rate which prevailed last season as the differential between Buffalo and Tonawanda is usually 10 cents. Shippers are naturally reluctant to talk rates for next season as yet as a great many things may happen before navigation is actually begun. Ore for 1905 delivery, however, is selling quite freely and shipments from the docks to the furnaces are larger than they were expected to be at this time of the year. The movement from dock to furnace at this time would indicate that some of the furnaces are rather short of ore. There is a goodly supply of ore on dock, however, and probably a fair part of it will be on dock when navigation opens. There is absolutely no reason to fear any ore famine during the next two or three months. One hard coal firm at Buffalo has taken tonnage for about 30,000 tons to be loaded at once, paying 10 cents over the opening rate for storage.

LAKE SEAMEN'S UNION

The Lake Seamen's union concluded a week's meeting in Cleveland last week. Their principal business was to adopt a schedule of wages for the season of 1905. The new scale which will be presented to the executive committee of the Lake Carriers' association calls for an increase of 10 per cent in the wages of the ordinary seamen. As no change was made whatever in the wages of the wheelmen, watchmen and lookouts, this increase of 10 per cent really only amounts to an increase of $2.50 per month for a limited number of men. Last season the deck hands received $25 per month from the opening of navigation until Oct. 1 and $37.50 per month from Oct. 1 to the close of the season.

Bids were opened last week by the navy department for furnishing armor plate for the battleship New Hampshire and the armored cruisers Montana and North Carolina. The Midvale Steel Co. of Philadelphia, Pa., was the lowest bidder and will probably get the contract. The bids of the Carnegie Steel Co. and the Bethlehem Steel Co. were identical—$450 a ton for Class A and $400 a ton for classes B and C. The Midvale bid was $398 a ton for class A, $393 a ton for class B and $388 a ton for class C.

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DESIRABILITY OF STEAMSHIP BONDS

A financial practice, which has been developed in the great lakes region during the past dozen of years and which experience has proved wise, is that of building steamships upon bonds. The first steel ship built upon the great lakes to carry iron ore was launched about 1885, but it was not until 1890 that steel became the common material for the construction of freighters on the great lakes. Coincident with the adoption of steel for ship construction came the steamship bond. And a very excellent bond it is. While a government bond pays from 2½ to 3 per cent, and municipal bonds average from 3 to 4 per cent, a steamship bond pays 5 per cent and for all practical purposes the security is quite as good. The life of a steel ship is regarded as indefinite. The classification societies will give a steel ship an A-1 rating for twenty years and upon the observance of certain conditions at the expiration of that time will renew the rating for a like period. The hull, therefore, of the steel ship is its own security. The same thing cannot be said of the wooden vessel which is probably the reason that no wooden vessels are built upon bonds. Since the trust companies of the great lakes began dealing in this form of security over $15,000,000 worth of these bonds have been sold and there is yet to be related a single instance wherein one of them defaulted in its interest account.

As a rule in financing the construction of a steel ship one-half of the sum needed is supplied in cash and the other half secured upon bonds. In organizing a company, therefore, stock is issued to the shareholders for half the value of the steamer for which they pay in cash, and a mortgage covering its entire value given to the trust company as security for its loan, upon which mortgage the bonds are owned. But it is not to be supposed that a trust company would advance one-half the sum necessary to build the vessel if the hull was its only security. It would still have to face the risk of loss through accident or stress of weather and if the vessel went down its security would have totally disappeared. The mortgage therefore contains the provision that the vessel is to be fully insured with the trust company as beneficiary and this the trust company looks after and holds the policies which are transferred to it. By this means the bondholder is secured from any loss whatever for, should the vessel founder, the insurance is more than ample to return to him his principal. The bondholder is, moreover, safeguarded in other ways. The trust company requires to be returned to it quarterly a statement of the earnings and expenses of the vessel in order that it may know precisely whether the vessel is being well managed. The mortgage also stipulates how much debt the vessel may contract while being operated. As a rule an indebtedness of over $1,000 is not permitted to accumulate. Any vessel owner who has a bond-built vessel will declare that the trust company scarcely allows any debt over the ordinary operating expenses. Thus are the bonds safeguarded again for the vessel is practically compelled to operate upon a cash basis.

Then again the bond-built boat is regularly overhauled and repairs made which bring her earning power completely up to date as is evidenced by the number of steamers which are now being lengthened for the purpose of increasing the carrying capacity and thereby lowering the ton-cost of carrying freight.

Additional security lies also in the fact that the bonds are usually made redeemable annually in 10 per cent lots. For instance if a vessel is bonded for $100,000 for ten years, which is the customary period, only $90,000 worth of the bonds will be outstanding at the end of the first year, and at the end of the fifth year only $50,000. Yet the entire vessel and all its insurance remains as security for the outstanding $50,000 of bonds. Naturally as each allotment of bonds is retired the outstanding bonds become more and more valuable because the proportionate security is greater while the stock also increases in value because the interest charges against the ship's earnings are growing rapidly less. Indeed bonds in substantial lots are frequently entered in anticipation of dates of maturity which practice, of course, enhances the value of those outstanding. The bonds, as stated, bear interest at the rate of 5 per cent per annum. With $100,000 outstanding the vessel would have to pay $5,000 in interest at the end of the first year but the interest charge would have diminished to $2,500 at the end of the fifth year and would become $500 less for each succeeding year during the five years remaining. It would be a very poor season, indeed, when a modern carrier would be unable to meet these interest charges. Such a season has never occurred and is not likely to; yet so thoroughly do the vessel owners appreciate the grip that the trust company has upon their steamers through its bonds that the practice is invariably followed of paying next year's bonds with this year's earnings. A definite sum is annually set aside to meet the proportion of bonds maturing during the following year together with the interest charges upon the entire issue outstanding. By this policy the vessel owner is forever anticipating and providing for the lean year ahead.

In lieu of the fact that there is a tremendous demand for bonds, and very few bonds to be had, it is surprising that these steamship bonds are selling only at par. Two years ago when there was an excess of orders for ships they sold at 101 and 102. Just at present, however, the ships that are building on the great lakes are being constructed for wealthy corporations, such as the steel making companies which have the wherewithal to pay for them in cash and, therefore, the number of vessels now under construction that are being built upon bonds is not proportionately as great as during the two preceding years. The bonds that have been issued, however, during the past ten years, have found their way to the remotest quarters of the country. They are regarded as excellent security by banking corporations and have been purchased by them in preference to government bonds, the collateral being regarded as quite as stable and the investment twice as profitable. Many banks in the far west and east have invested generously in them. Undoubtedly when there is a better understanding of the nature of these bonds they will be quoted at much higher figures than now. The interest which the steamship bond pays is high considering the absolute integrity of the collateral. There's many a municipal and county bond, with security certainly no better, that pays a much lower rate of interest. Moreover, municipal and county bonds are subject to adverse legislative decisions which might jeopardize the payment of both principal and interest, or at any rate delay it while a vessel owner would sooner take his life than to permit the trust company to foreclose its blanket mortgage upon his property.

The steamship bond can be recommended as a profitable and desirable investment.

The work of converting the steamer J. Emery Owen into a lumber barge at Milwaukee is under way. She will be cut down to her covering board, where there is a steel brace that will be used as the top of her rail. As the main deck is out, the spar deck will be lowered to the desired place, which involves some new undertakings. The Owen was paid for at a total loss by the underwriters after she burned off Sturgeon bay and was bought by Pfohl & Son of Buffalo.

A public hearing may be held in Cleveland relative to the removal of the abutment of the Valley Railway bridge in the Cuyahoga river. The Chamber of Commerce of Cleveland on behalf of the navigation interests has made a complaint about it and the matter has been referred to Major Dan C. Kingman, government engineer, for investigation.

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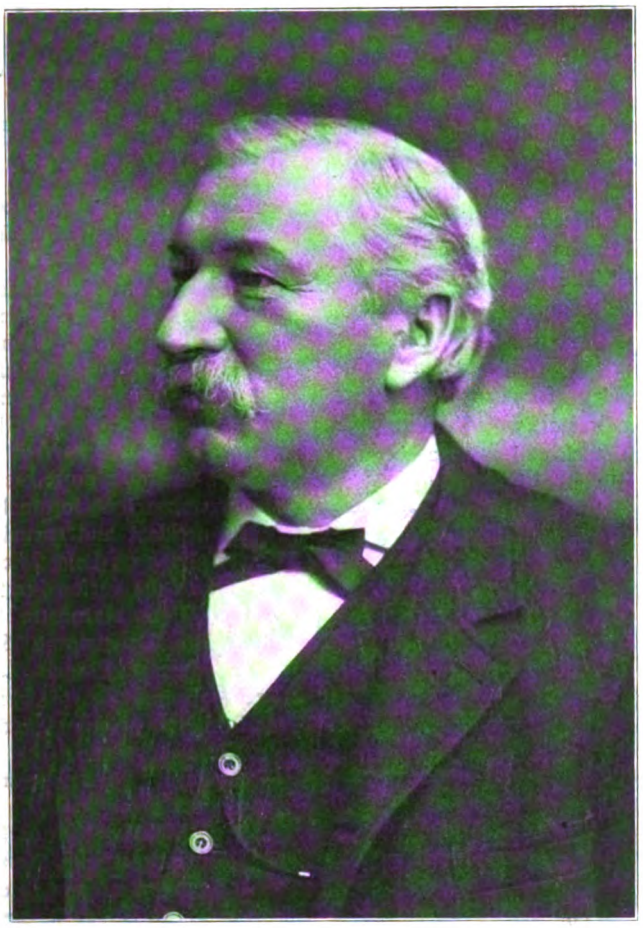
SKETCH OF CAPT. JAMES PARSONS

Capt. James Parsons died in the California hospital at Los Angeles, Cal., Dec. 23 last. Interment took place at Chicago in Rosehill cemetery on New Year's day. Capt. Parsons was born in Newport, Wales, June 8, 1838, and with his family came to America four years later. James was the oldest of eight children; the others survive him. The family first located in Michigan but subsequently went to Erie county, Pennsylvania. In 1868 he was married at Detroit to Elvira McPherson, who survives him as do also their four children: James H., Mrs. Eva P. Reardon, Irving R. and Eugene W.

Capt. Parsons was a member of Detroit lodge of the Shipmasters' association and chaplain of it for several years. He sailed the great lakes for about forty years, the first seven of which was spent before the mast. He commanded his first sailing vessel when about twenty-one years old and continued sailing in that capacity until the seventies. Then he spent six years in the oil business in Pennsylvania, but returned to the lakes and accepted the captaincy of the steamer Huron City. Since that time he commanded steamboats, among which were the Nipigon, Alpena, and Charles Hebard. He superintended the building of the Charles Hebard and launched her in June, 1888, from Oades ship yard, Detroit. He commanded her for Charles Hebard & Sons of Pequaming, Mich., until 1898 when she was sold and he retired from lake service. It is of interest to note at this point that during Capt. Parsons' forty years of service he never lost a man and had but one serious accident.



CAPT. JAMES PARSONS

At one time he nearly lost his life by falling overboard while sailing the schooner Cortland in which he had one-third interest. He was coming down with a load of staves, a good share of which were on deck and was caught in a heavy blow on Lake Erie. He went forward to look for Long Point light and took hold of one of the stanchions which held the deck load. The stanchion gave way and he went overboard. As the schooner went by the wheelman heard his call to put the wheel down, lower a boat and save him if he could. In the storm and darkness they ran about a mile before they could come about and lower a boat. When they got back near the spot where the captain fell over, the clouds suddenly broke, and by the light of the moon they found him and pulled him aboard. It was a long time before he could speak, but he did not lose consciousness, and while sitting in a chair was able to make Buffalo harbor.

The captain often told of an incident which happened during the civil war, and in which he played a prominent part. During the winter and spring previous to the Fenian raid two men employed in the lighthouse service frequented the dining-room of the hotel at which the captain boarded. The men, who were confederates, were looking for a pilot familiar with the waters around the islands at the head of Lake Erie. They offered him a princely sum to pilot them to Johnson's island, where at this time 16,000 confederate prisoners were held. The United States gunboat Michigan was anchored off Sandusky. The plan was to capture the Philo Parsons, which ran between Detroit and Sandusky, making Amherstburg, at which place the men planned a recruiting station, to capture the Island Queen, then with the help of these two steamers to capture the Michigan, and finally to release the confederate prisoners on Johnson's island. The plan was unique and if carried out would have caused a great loss to the Union forces. The men presented their plan to the captain and when he refused to be connected with the plot threatened to take his life. That did not daunt him, and he went as usual on his boat in the spring, not, however, before several attempts were made to kill him. Early in April he informed Com'dr Carter of the Michigan about the plot, without revealing his own name. The information had the desired effect and the Union forces were ready when the attack came.

Capt. Parsons possessed a fine Christian character. His regard for truth and justice was ideal. The men who trusted their property to his care knew they had nothing to fear; the men who trusted their lives to him on the waters rested secure in the thought of his courage and good judgment. A business man of Detroit once said, "Capt. Parsons is as true as the sun, and his word is as good as a bank-note." He often compared the making of a safe harbor after a wild and stormy voyage by the aid of guiding lights to the entering of the heavenly harbor with Christ as the beacon light.

According to authoritative statements a bill regulating towing in New York harbor will be presented to congress shortly. It is being drafted at the instance of steamship men in New York and its provisions are said to be less offensive to the towing companies than those of any similar bill ever urged upon congress. Mr. Gustav H. Schwab of the North German Lloyd in speaking of the proposed bill said that the idea was to make the regulations apply only to the tows passing through the Narrows. These average about forty and are seen going out at the ebb tide and constituting a serious menace to the big liners. It is represented that owing to conditions obtaining at the Narrows ocean liners of great draught have been compelled to either run down tows or get stuck in the mud, life and property of great value being endangered in either event.

The directors of Veloce, the fast Italian line, announce that their new steamer Europa will start on her maiden voyage from Naples to New York in March. She is intended for an average speed of 17 knots.

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COMMON STOCK HOLDERS SUE AMERICAN SHIP

During the past few months there has been considerable flurry in the common stock of the American Ship Building Co., some brokers even advertising to pay a certain figure for it. Influences outside of the company were responsible for this activity and for some time past there have been rumors that a combination of common stockholders would endeavor to force the company to declare a dividend upon the common stock. This threatened suit has now been begun by Attorney Carl Dautel who says that he is the owner of fifty shares of ship common and brings action on behalf of himself as well as the other common stockholders. His chief contention is that the American Ship Building Co. now has in its treasury a surplus of $3,678,442.75 after having satisfied all the claims of the preferred stockholders. In his petition he asks the court to decree that the directors of the company meet and declare a dividend on the common stock equal to the total amount of the surplus fund. The rest of the petition merely recites the history of the company's organization under the laws of New Jersey.

An important meeting of the directors of the American Ship Building Co. was held on Wednesday afternoon with every member present except two. The directors voted not to declare a dividend upon the common stock and suit was begun in consequence. The action of the directors in refusing to declare a dividend on common, notwithstanding the pressure exercised, was already forecasted in the minds of those who are familiar with the policy of this company. It is a very conservative organization—conservative in the value which was placed upon it when it was formed, conservative in its management since. It has been the settled policy of this company to entrench itself well financially at all times, to have sufficient cash in its treasury to meet the great sums which it must continually pay out for material and thus to obviate the necessity of continually borrowing money from the banks. The common stock of this company is unlike the common stock of most of the latter-day organizations in that $20 was actually paid into the treasury for it when the company was formed. One dividend of 1 per cent has been declared upon this common stock. This dividend was declared after an era of unexampled business. At that time the company had actually built thirty-nine ships during its fiscal year and had orders for thirty-nine more. Ship building then took a decided slump. No new orders were received to occupy the berths rapidly becoming vacant. In fact its berths from one end of the lakes to the other were becoming empty without a single order in sight. The undivided profits of the year ended June 30 last were only $187,127.32. Those familiar with the company's policy were not surprised that under such conditions the company did not declare a dividend upon its common stock.

During the past three months the company has received quite a flood of orders but they are of such a character as to practically compel it to modernize its plant. The ships that are now being built are, almost without exception, unlike any on the lakes and the plants of the American Ship Building Co. will have to be reconstructed to care for them. With the exception of the docks at West Superior and South Chicago all of the existing docks of the company are too small to care for the class of vessels now being built. The company has in mind improvements that will involve the expenditure of more than $1,000,000. Recently considerable acreage was bought at Lorain in order to greatly enlarge the capacity of the plant there. In keeping with the solidity of its financial policy the company feels that it should have a working capital of $2,500,000, which sum, it is understood, has been set aside for that purpose.

AROUND THE GREAT LAKES

The new steamer building for Pickands, Mather & Co. by the American Ship Building Co. will be named Samuel Mather.

The two steamers building at the Bay City yard of the American Ship Building Co. for Mr. G. A. Tomlinson of Duluth will be named Sylvania and Socopa.

The steamer Penobscot, which struck on Racine reef last September, is at the Milwaukee ship yard. Twenty-seven plates are being taken off. They will be rerolled and put on again.

David Horn, inspector of grain for Manitoba, has been made chief grain inspector of the Dominion of Canada. Inspection of grain at all Canadian ports will be directly under his control.

As soon as possible the William S. Mack, Lake Shore and Fayette Brown are to be docked at Milwaukee, the Lake Shore and Mack for bottom work and the Fayette Brown for general repairs.

The American Ship Building Co. has received an order for the construction of two fueling scows to be the most modern of their kind on the lakes. The name of the company for which they are building has not been announced.

According to figures furnished by the department of commerce the coal movement by lake last season was 20,674,308 net tons. Vessels carried 12,801,369 tons to American ports and the Canadian ports received 6,552,718 tons. The steamers used 1,320,221 tons for fuel.

The accident and casualty record of the Pere Marquette ferries plying on Lake Michigan in 1904 shows that the total damage to the various craft was $60,800. The heaviest loss was on Pere Marquette No. 9 which stranded near Fox Point, Feb. 6, sustaining $60,000 damages.

The steamer Francis L. Robbins building for the Roby Transportation Co. of which Mr. W. H. Becker of Cleveland will be president and manager will be launched from the Cleveland yard of the American Ship Building Co. today (Thursday). She is the smallest of the steamers now building on the great lakes.

Mr. G. W. Maytham of Buffalo says that he has practically closed a contract with the Craig Ship Building Co. of Toledo for a 7,500-ton steamer to come out next July. The proposed steamer is to be 442 ft. over all, 420 ft. keel, 50 ft. beam and 30 ft. deep. No corroboration of this contract has been received from the Craigs.

The annual joint meeting of the International Water line, the Great Lakes & St. Lawrence and the Niagara Frontier Passenger associations will be held in Buffalo today (Thursday). Passenger rates for the season of 1905 will be revised and corrected and the question of the consolidation of the two former organizations will be discussed.

Mr. T. J. Dolan, Jr., Chicago, general secretary-treasurer of the International Brotherhood of Steam Shovel & Dredgemen is at present making a tour of the lakes in behalf of the organization. He was visiting Lake Erie ports this week and will visit upper lake ports next week. The purpose of his trip is in reference to the wage schedule to be presented to the dredge contractors for the season of 1905.

It is announced from Ottawa that marine insurance rates were formerly so high as to be almost prohibitive on ocean shipments by the St. Lawrence river route are now being reduced on account of the vigorous campaign waged by the minister of marine for the improvement of the channel. So important has been the work already accomplished that several shipping concerns have officially thanked the minister for the improved conditions.

Mr. J. C. Evans of the Anchor Line has announced his appointments for the season of 1905. Capt. Edward Martin who last season sailed the Tionesta will bring out the new passenger steamer Juniata. Capt. John Doherty who last

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season sailed the Japan will, with his entire crew, be put in the Tionesta, and Capt. J. J. Lehan of the China will be given the Japan, and Capt. Chas. Christy who last season sailed the freighter Conemaugh will be given the China. Capt. Loadwick will remain in the India.

The annual meeting of the Tug Firemen & Linemen's Protective association is being held at Buffalo this week with the following delegates in attendance: James Finan, John Winterbottom, Chicago; A. Elliott, M. Glockia, Duluth; Edward Doyle, T. McNaugh, Cleveland; Max Etzel, Milwaukee; Harry Fowler and G. P. Jordan, Sault Ste. Marie; D. Carter and T. Reilly, Buffalo; Edward Taylor, Toledo; Otto Becker, Ashtabula; E. W. Bruce, Ashland; Frank Isabell, Sturgeon Bay; James Lusies, Two Harbors; William Riggs, Port Huron; George N. Smith, Port Huron; T. Weber, Lorain. The executive committee was empowered to arrange a wage scale with the Great Lakes Towing Co. Mr. Archie Valiquet will probably be elected president.

After having remained out twenty-four hours the jury in the case of the United States against the Pittsburg Steamship Co. returned a verdict for the defendant this week. The government sought to recover damages amounting to $7,700 said to have been caused through the negligent operation of the defendant's steamer Matoa, which collided with a government breakwater at South Chicago. As a result of the jury's action Capt. J. F. Johns, commanding the Matoa, has been vindicated. Had a verdict been returned against the company it is said that Capt. Johns might have been declared incompetent to command a vessel. It was alleged by the defendant that the collision occurred during a heavy fog and was not due to any fault of the captain or crew.

IMPROVEMENTS IN ST. MARY'S RIVER

The war department has transmitted to congress the final survey of the St. Mary's river project made by Lieut. Charles E. L. B. Davis, government engineer at Detroit. His report deals with a survey of the connecting waters between Lake Superior and Lake Huron including Hay Lake channel with plans and estimates of such improvements as will provide a 21-ft. channel.

He estimates that the work will cost $10,160,100, divided as follows, which is $5,060,000 more than has been provided for; 21-ft. channel, West Neebish river, provided for and now being constructed, $1,500,000; 21-ft. channel, Middle Neebish, $1,250,000; widening upper entrance of canal, $1,020,000; additional land, $890,000; new locks, $3,300,000.

This work was begun two years after the adoption of a plan drafted by Col. Lydecker. This plan was to provide a 21-ft. channel, 1,000 ft. wide, from the canal to deep water in Hay lake and to make a new outlet from Hay lake to Mud lake through the West Neebish at least 300 ft. wide, and to deepen the old channel from Hay lake to Mud lake through the Middle Neebish. This work is now under contract. To provide for a continuous channel from Lake Superior through the canal to the upper terminus of the portion just described, Col. Lydecker proposed to construct a new lock on the site of the old Weitzel lock, and to deepen and widen the canal above the lock. Lieut. Col. Davis estimates that this new work will cost $4,410,000.

He proposes to place the lock nearly on the site of the Weitzel lock, but not exactly so, in order that large vessels may enter and leave the lock without being forced to change direction at any angle of the entrance cribs. Col. Davis recommends a lock 72 ft. wide and 1,300 ft. long, so that two of these vessels can be locked through at the same time, one astern of the other. He prefers that to locking them through abreast on the ground that the former method saves time. Gen. Mackenzie, chief of engineers, has been studying these plans for some time and has approved them with the exception of the exact location and dimensions of the lock, holding that these are the matters requiring further study. In fact they are, a lock 72 ft. wide may be too narrow, as was brought out at the annual meeting of Lake Carriers, in a few years.

MEAN STAGES OF WATER

The gauge records of the United States lake survey show the following mean stages of water above mean sea level, for December, 1904:

	Stages during Dec.	Higher than during same month last year.	Lower than during same month last year.	Higher than during Oct., 1895.	Lower than during Oct., 1895.
	Feet.	Feet.	Feet.	Feet.	Feet.
Lake Superior	602.82	0.02	.....	0.30	.....
Lake Michigan	580.37	0.49	.....	1.39	.....
Lake Huron	580.50	0.38	.....	1.48	.....
Lake Erie	571.52	0.21	.....	0.66	.....
Lake Ontario	245.95	0.86	.....	2.44	.....

Present fall Lake Huron to Lake Erie, 0.17 foot more than year ago.

SHIP BUILDING IN THE UNITED KINGDOM.

From the returns compiled by Lloyd's Register of Shipping, it appears that, excluding warships, there were 403 vessels of 1,049,860 tons gross under construction in the United Kingdom at the close of the quarter ended Dec. 31, 1904. The particulars of the vessels in question are as follows, similar details being given for the corresponding period in 1903 for the purpose of comparison:

DESCRIPTION.	Dec. 31, 1904. No.	Dec. 31, 1904. Gross Tonnage.	Dec. 31, 1903. No.	Dec. 31, 1903. Gross Tonnage.
STEAM.				
Steel	368	1,037,288	332	874,930
Iron	1	250	..	..
Wood and Composite	2	250	2	390
Total	371	1,037 788	334	875,320
SAIL.				
Steel	13	10 162	29	20,830
Iron	1	180	1	260
Wood and Composite	18	1,730	22	2,068
Total	32	12 072	52	23,158
Total Steam and Sail	403	1 049,860	386	898,48

The tonnage under construction is now about the same as it was at the end of September, 1904. Compared, however, with the total reached in September, 1901, which is the highest on record, the present figures show a reduction of about 363,000 tons.

Of the vessels under construction in the United Kingdom at the end of December, 315 of 748,177 tons are under the supervision of the surveyors of Lloyd's register with a view to classification by this society. In addition, forty-three vessels of 110,763 tons are building abroad with a view to classification. The total building at the present time under the supervision of Lloyd's register is, thus, 358 vessels of 858,940 tons.

During the year 1904 there arrived at the port of New York a total of 11,279 vessels exclusive of tugs, barges and small craft. Of this number 4,035 came from foreign ports, the greater number being of British registry, the second largest number of American registry, followed by German and Norwegian vessels. The remainder of the arrivals were from coastwise ports, 3,781 being from southern ports and 3,463 from eastern ports. Of the foreign arrivals 3,158 were steamers and 877 sailing vessels. Compared with the arrivals of the year 1903 there is a decrease of 975 vessels. The foreign arrivals increased twenty-two vessels, the southern arrivals decreased eighty-three vessels and the eastern arrivals decreased 914 vessels.

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FIGHTING THE ERIE CANAL PROJECT

The impression prevailed that when the people of the state of New York voted to enlarge the Erie canal to accommodate barges of 1,000 tons capacity that it was the final expression on the subject. The interests which have fought the enlargement of this canal, however, have again grown active and has engaged the service of Elihu Root, formerly secretary of war, to attack the constitutionality of the barge canal act. Incidentally Senator Brackett has introduced a resolution in the senate at Albany requesting the attorney general to inform the senate whether the canals of the state are navigable waters and for that reason within the control of the United States; and whether the state can safely commence the work of enlarging the canal without the consent of the United States authorities. Meanwhile Mr. N. V. V. Franchot, who was recently appointed superintendent of public works by Governor Higgins, is waiting for an opinion as to the legality of all acts of his predecessors relating to canal work before awarding the bids for the construction of certain sections of the canal which were recently opened. The attempt is evidently to delay the work through litigation. It would seem as though the will of the people had been clearly expressed upon this subject and it is hoped that the legal authorities will so hold and that this work, so necessary to the development of internal commerce, be pushed to completion.

TIDES OF LAKE MICHIGAN

A writer in Engineering News has noted the phenomena described by A. W. Shaw in a paper read before the Western Society of Engineers at Chicago and dealing with the so-called tides of Lake Michigan. Mr. Clyde Potts, 902 Whitehall building, New York, was employed during the summer of 1903 by the United States Lake Survey in establishing a self-registering water gauge on the pier at Milwaukee, Wis. He had therefore an excellent opportunity for observing the fluctuations and their extent and duration. Mr. Potts says:

There is undoubtedly a tide on Lake Michigan and on all the great lakes for, as some old hydraulican has said, there is a tide in a tea cup. The tides on the great lakes due to the moon may or may not be appreciable, but they are lost sight of in the other disturbances of the water level, among which is the disturbance or fluctuation noted by Mr. Shaw. This fluctuation is undoubtedly due to a difference of barometric pressure at the extremeties of the lake. The water in the lake acts as an evenly balanced scale and weighs the atmospheric pressure at each end (or side). Frequently preceding a heavy storm the self-registering water guage recorded fluctuations of two feet or more coming in and going out as large tidal waves with a period between high and high, varying from twenty minutes to more than an hour. It was apparent that the elapsed time between high and high depended on at what points on the lake the barometric pressures created the wave. If the wave was created by a difference of pressure at points on the east and the west sides of the lake (approximately 90 miles) then the wave would travel across and back in a much shorter time and when set in motion by a difference of pressure at the north and south ends. The waves of duration of twenty minutes between high and high were probably waves traveling across the lake.

It is really the same thing on a large scale as what would happen if we were to take an oblong basin of water and set a wave traveling lengthwise or crosswise by tilting motion. The geographical situation of Milwaukee is such that waves traveling the length of the lake would show on the record going south, and again going north in a less time than the next trip south.

Lake Erie is much more interesting than Lake Michigan for here the effect of the wind is added to the barometric pressure in producing violent fluctuations. Lake Erie lies in the direction of the prevailing winds and the variation such as Mr. Shaw describes as occurring at Chicago, has at Buffalo been more than 13 ft. This was unusual and was a rare combination of great difference of barometric pressure and heavy winds. One very interesting thing in connection with this great fluctuation on Lake Erie was that when the government guage at Buffalo began to show a rise, the government guage at the west end of the lake began to show a corresponding fall at almost the same instant.

There are many interesting things in the hydraulics of the great lakes which will develop with the mass of information being collected by the United States Lake Survey.

OBITUARY

When Capt. Wm. McKay died at the home of his daughter, Mrs Charles E. Kanter, 100 Winder street, Detroit, last week, one of the rare old heroes of the great lakes passed away. No man who has ever been associated with navigation on the great lakes was more respected or better loved. He was really a heroic figure among the captains and time and time again had risked his life to save others. His bravery was equaled only by his skill. Com'dr George W. Gardner relates an incident wherein at one time Capt. McKay marvelously maneuvered his own boat in a furious gale to take off the crew of another vessel which was fast being pounded to pieces off Fairport.

Capt McKay was born in Scotland. He went to Canada while a boy. While employed in a sawmill in the Dominion he attracted the attention of the master of the schooner Mansfield and shipped before the mast for three seasons on this vessel. In 1847 he spent the winter on a coaster along the Newfoundland shore. He returned to the lakes in the following year and when the Atlantic was brought out to run on the Detroit and Buffalo route he shipped as wheelsman. He later became mate of the steamer Ward and also of the Canada. During the fifties Capt. McKay commanded the passenger and freight steamer Arctic to Lake Michigan ports from Chicago. He gave an exhibition of his mettle while serving on the Arctic. On one occasion after the boat was several miles out in the lake fire was discovered in the hold. Ordering the crew to play one hose upon him he, with another hose in his hand, entered the fire hold and extinguished the blaze. He then headed for the nearest port where it was discovered that the hull of the steamer was seriously damaged. His most heroic deed was in 1864 when he was master of the City of Cleveland. The steamer Winslow had left the port on a terrible stormy night in October. The elements were too much for her and she was swept against the piling off Fairport and wrecked. It was on this occasion that Capt. McKay maneuvered his vessel so magnificently as to pick up the remainder of the crew from the wreckage. In 1874 he made a thrilling rescue of the crew of the steamer Cecelia Jeffrey which had gone down off the Cleveland breakwater. The men clung to the rigging while the heavy seas rolled over them but they were finally rescued by Capt. McKay, while thousands watched him from the docks. When the Morning Star was wrecked between Cleveland and Point Pelee, Capt. McKay and his men rescued thirty persons while the heavy sea was rounding. In all his life he personally never lost a passenger and never had a serious accident to any vessel he commanded. He retired about seven years ago. He was seventy-eight years old at the time of his death.

Jacob Oleson, eighty years old, died at the poor-house at Kenosha, Wis., last week. He had been a sailor on the lakes all his life and was the first enlisted member of the Kenosha life saving crew. Notwithstanding the fact that he had received personal commendation from the president and

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Congress for bravery upon various occasions, he died in the most abject state of poverty. He rescued six men from the water-logged schooner E. E. Royce in 1883 and during the same year took off ten men and a woman from the sinking steamer Rockaway. His latest feat before he retired was the rescue of the crew of the steamer Solen H. Johnson in 1887.

WINTER MOORING LIST OF LAKE VESSELS

Name of Vessel.	Name and Address of Managing Owner.
BAY CITY, MICH.	
Bge. J. B. Comstock	John W. Ritchie, Bay City, Mich.
Str. Langell Boys	John W. Ritchie, Bay City, Mich.
Bge. Abram Smith	John W. Ritchie, Bay City, Mich.
BUFFALO, N. Y.	
Str. Kearsarge	Canada Atlantic Trans. Co., Ottawa, Ont.
CHICAGO, ILL.	
Bge. James Mowatt	J. W. Squires, Marine City, Mich.
Str. Niko	John Prindiville & Son, Chicago, Ill.
Str. Arthur Orr	Canada Atlantic Trans. Co., Ottawa, Ont.
Str. Geo. N. Orr	Canada Atlantic Trans. Co., Ottawa, Ont.
Bge. Annie M. Peterson	John Prindiville & Son, Chicago, Ill.
Str. Jas. Sheriffs	J. W. Squires, Marine City, Mich.
Str. Jesse Spalding	John Prindiville & Son, Chicago, Ill.
Str. Winnebago	John Prindiville & Son, Chicago, Ill.
CLEVELAND, O.	
Bge. Mary N. Bourke	George Nester, Detroit, Mich.
Bge. George Nester	George Nester, Detroit, Mich.
Str. Schoolcraft	George Nester, Detroit, Mich.
COLLINGWOOD, ONT.	
Ottawa	Canada Atlantic Trans. Co., Ottawa, Ont.
DETROIT, MICH.	
Str. City of Toledo	White Star Line, Detroit, Mich.
Str. Greyhound	White Star Line, Detroit, Mich.
Bge. Keweenaw	George Nester, Detroit, Mich.
Str. Owana	White Star Line, Detroit, Mich.
Str. Tashmoo	White Star Line, Detroit, Mich.
GREEN BAY, WIS.	
Str. City of Green Bay	Warren C. Shilling, Green Bay, Wis.
MARINE CITY, MICH.	
Str. Alaska (small)	Wm. Sanborn, Alpena, Mich.
Bge. Anderson, A.	N. & B. Mills, Marysville, Mich.
Str. Aztec	Spence Bros., Cleveland, O.
Str. Barnes, C. C.	L. S. Sullivan, Toledo, O.
Bge. Boom Nelson	J. P. Harrow, Algonac, Mich.
Schr. Cheetah	Henry McMoran, Pt. Huron, Mich.
Bge. Edward, J. R.	Henry McMoran, Pt. Huron, Mich.
Str. Havana	N. & B. Mills, Marysville, Mich.
Str. Hayward	Gilbert La Croix, Mt. Clemens, Mich.
Bge. Maxwell, A. C.	W. E. Donely, Saginaw, Mich.
Bge. Aztec	Spence Bros., Cleveland, O.
Str. Mills, N.	N. & B. Mills, Marysville, Mich.
Bge. Orton, M. E.	Henry McMoran, Pt. Huron, Mich.
Str. Pawnee	Henry McMoran, Pt. Huron, Mich.
Str. Scott, T. R.	John E. Mills, Pt. Huron, Mich.
Str. Sicken, M.	Capt. J. B. Lozen, New Baltimore, Mich.
Str. Sparta	N. & B. Mills, Marysville, Mich.
Bge. St. Joseph	M. Sicken, Marine City, Mich.
Bge. Young, Wm. A.	Henry McMoran, Pt. Huron, Mich.
MARINETTE, WIS.	
Str. Bonita	Isaac Stephenson, Marinette, Wis.
Bge. J. W. Stephenson	Isaac Stephenson, Marinette, Wis.
MENOMINEE, MICH.	
Bge. Two Myrtles	Warren C. Shilling, Green Bay, Wis.
MILWAUKEE, WIS.	
Str. A. E. Stewart	Stewart Transportation Co., Detroit, Mich.
MT. CLEMENS, MICH.	
Schr. A. J. McBrier	Victoria Packer, Detroit, Mich.
SHEBOYGAN, MICH.	
Str. Chippewa	Arnold Trans. Co., Mackinaw Island, Mich.
Str. Elva	Arnold Trans. Co., Mackinaw Island, Mich.
Str. Sailor Boy	Arnold Trans. Co., Mackinaw Island, Mich.
ST. IGNACE, MICH.	
Str. Algomah	Arnold Trans Co., Mackinaw Island, Mich.
Str. Islander	Arnold Trans Co., Mackinaw Island, Mich.
Str. Wau-kon	Arnold Trans Co., Mackinaw Island, Mich.
SOUTH HAVEN, MICH.	
Str. City of Haven	Dunkley-Williams Co., Chicago.
Str. City of Kalamazoo	Dunkley-Williams Co., Chicago.
Str. Glenn	Dunkley-Williams Co., Chicago.
Str. Petoskey	Dunkley-Williams Co., Chicago.
Str. Williams, H. W.	Dunkley-Williams Co., Chicago.
STURGEON BAY, WIS.	
Bge. Advance	Leatham & Smith Towing & Wrecking Co., Sturgeon Bay, Wis.
Str. Fletcher, F. W.	J. O. Nessen, Manistee, Mich.
Str. Foster, I. N.	Leatham & Smith Towing & Wrecking Co., Sturgeon Bay, Wis.
Str. Hurd, Jos. L.	Leatham & Smith Towing & Wrecking Co., Sturgeon Bay, Wis.
Tug Leatham, John	Leatham & Smith Towing & Wrecking Co., Sturgeon Bay, Wis.
Tug Nelson, Geo.	Leatham & Smith Towing & Wrecking Co., Sturgeon Bay, Wis.
Str. Packard, Chas. B.	Leatham & Smith Towing & Wrecking Co., Sturgeon Bay, Wis.
Str. Pewaukee	Leatham & Smith Towing & Wrecking Co., Sturgeon Bay, Wis.
Tug Wright, A. J.	Leatham & Smith Towing & Wrecking Co., Sturgeon Bay, Wis.
ST. CLAIR, MICH.	
Schr. Bottsford, R.	John C. Pringle, St. Clair, Mich.
Str. City of Holland	Oscoda & Cleveland Trans. Co., St. Clair, Mich.
Str. Douglas	Oscoda & Cleveland Trans. Co., St. Clair, Mich.
Schr. Golden Rule	E. C. Recor, St. Clair, Mich.
Str. Hickox, C.	Belknap & Phillips, St. Clair, Mich.
Str. Leuty, D.	John C. Pringle, St. Clair, Mich.
Str. Maud	Belknap & Phillips, St. Clair, Mich.
Str. Norwalk	Shoal Water Transportation Co., Mt. Clemens, Mich.
Str. Pilgrim	Oscoda & Cleveland Trans. Co., St. Clair, Mich.
Str. Recor, Edward C.	E. C. Recor, St. Clair, Mich.
ST. IGNACE, MICH.	
Str. Algomah	L. R. Boynton, St. Ignace, Mich.
Str. St. Ignace	L. R. Boynton, St. Ignace, Mich.
Str. Wau-Kon	L. R. Boynton, St. Ignace, Mich.
SUPERIOR, WIS.	
Str. Clemson, D. M.	Provident Steamship Co., Duluth, Minn.
Str. Reed, J. H.	Provident Steamship Co., Duluth, Minn.
TOLEDO, O.	
Bge. Adriatic	M. A. Bradley, Cleveland.
Bge. M. S. Bacon	Gilchrist Transp. Co., Toledo, O.
Str. Commerce	Lake Sand & Gravel Co., Toledo, O.
Str. Craig, Geo. L.	Monroe Trans. Co., Detroit, Mich.
Str. Dussault	Lake Sand & Gravel Co., Toledo, O.
Str. Ella G.	Lake Sand & Gravel Co., Toledo, O.
Str. Frick, Henry C.	Mitchell & Co., Toledo O.
Str. Gault, John C.	A. W. Colton, Lake Erie Transp. Co., Toledo, O.
Str. Gould, Geo. J.	A. W. Colton, Lake Erie Transp. Co., Toledo, O.
Bge. Iron Queen	W. C. Richardson, Cleveland, O.
Str. Iroquois	Arnold Trans. Co., Mackinaw Island, Mich.
Str. Laura, D.	Lake Sand & Gravel Co., Toledo, O.
Schr. Matanzas	Jas. Davidson, West Bay City, Mich.

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Bge. Melvina	M. Sicken, Marine City, Mich.
Bge. L. Ranson	M. Sicken, Marine City, Mich.
Str. Reynolds, S. C.	A. W. Colton, Lake Erie Transp. Co., Toledo, O.
Str. Russell Sage	A. W. Colton, Lake Erie Transp. Co., Toledo, O.
Str. Rust, David W.	L. S. Sullivan, Toledo, O.
Schr. Schuette, John	L. S. Sullivan, Toledo, O.
Str. Steel King	Gilchrist Transp. Co., Toledo, O.
Str. Syracuse	Lake Sand & Gravel Co., Toledo, O.
Bge. Twin Sisters	Gilchrist Transp. Co., Toledo, O.
Str. Venezuela	Jas. Davidson, West Bay City, Mich.
Bge. Wall, Charles	Sandusky Lumber & Box Co., Sandusky, O.
Str. Walter, D.	Lake Sand & Gravel Co., Toledo, O.
Bge. Whitney, Grace	M. Sicken, Marine City, Mich.
Str. Wilson, Capt. Thos.	The Wilson Transit Co., Cleveland.
TONAWANDA, N. Y.	
S. Bge Alta	John J. Boland & Co., Buffalo, N. Y.
Str. Birchead, P. H.	James O'Connor, Tonawanda.
Barge Buffalo	Adam Hartman, Tonawanda, N. Y.
Schr. Commodore	Knud, Pederson, Tonawanda, N. Y.
Bge. Gawn, T.	M. Sicken, Marine City, Mich.
Bge. Holland, Grace	Jerry McCarthy, Buffalo, N. Y.
Str. King, Geo.	M. Sicken, Marine City, Mich.
Str. Martin, S. K.	M. Sicken, Marine City, Mich.
Str. Nichol, J. M.	James O'Connor, Tonawanda.
Str. Nicol, John M.	John J. Boland & Co., Buffalo, N. Y.
Bge. Owen, Geo. B.	Mitchell & Rowland Lumber Co., Toledo, O.
Str. Pridgeon, John	John J. Boland & Co., Buffalo, N. Y.
Str. Pridgeon, John Jr.	Adam Hartman, Tonawanda, N. Y.
Str. Pridgeon, Jr., John.	James O'Connor, Tonawanda.
Str. Sachem	Mitchell & Rowland Lumber Co., Toledo, O.
Bge. Teutonia	M. Sicken, Marine City, Mich.
Bge. Wranus	J. M. Balfour, Marine City, Mich.
TORONTO, CAN.	
Str. Checora	Niagara River Line, Toronto, Can.
Str. Chippewa	Niagara River Line, Toronto, Can.
Str. Corona	Niagara River Line, Toronto, Can.
Str. Corsican	Richelieu & Ontario Nav. Co., Montreal, Can.
Str. Kingston	Richelieu & Ontario Nav. Co., Montreal, Can.
Str. Melborne	Merchants Line, G. E. Jackes, Montreal, Can.
Str. Ongiara	Niagara River Line, Toronto, Can.
Schr. Saint Louis	Sylvester Bros., Toronto, Can.
Str. Sequin	J. B. Miller, Toronto, Ont.
Str. Toronto	Richelieu & Ontario Nav. Co., Montreal, Can.
VERMILLION, O.	
Tug Deoney, J. P.	C. C. Baumhart, Vermillion, O.
Tug Driscoll, Fred.	C. C. Baumhart, Vermillion, O.
Tug E. M. B. A.	C. C. Baumhart, Vermillion, O.
Tug Erie	C. C. Baumhart, Vermillion, O.
Tug Favorite	C. C. Baumhart, Vermillion, O.
Tug Mary & Norman.	C. C. Baumhart, Vermillion, O.
Tug Percy, Oliver H.	C. C. Baumhart, Vermillion, O.
Tug Purue, James.	C. C. Baumhart, Vermillion, O.
Tug Stricker, Chas. P.	C. C. Baumhart, Vermillion, O.
Schr. Wilcox, M. I.	C. C. Baumhart, Vermillion, O.

It is announced from Washington that a company known as the United States Battleship Maine Salvage Co. has been organized to raise the battleship in Havana harbor. James D. Wychoff, whose headquarters are in Washington, is the managing director of the new company. The purpose is to recover all valuable articles, such as armament and machinery, to exhibit the wreck for a brief period of time and then to work its parts into souvenirs for sale. Several negotiations have been made in the past for raising this battleship but all of them came to naught.

The navy department has awarded a contract for the construction of a dry dock at the New York navy yard to G. W. Spearin, New York, on his bid of $773,292.

SUMMARY OF NAVAL CONSTRUCTION

The summary of naval construction, prepared by the navy department, shows commendable progress upon all naval vessels. A number of them, still on the structural list, are practically complete. The summary is as follows:

		Degree of completion, per cent. Dec. 1,'04.	Jan. 1,'05.
BATTLESHIPS.			
Virginia	Newport News Co.	73.43	75.24
Nebraska	Moran Bros. Co.	63.54	64.91
Georgio	Bath Iron Works.	69.67	71.94
New Jersey	Fore River Shipbuild. Co.	72.2	74.3
Rhode Island	Fore River Shipbuild. Co.	75.1	77.1
Connecticut	Navy Yard, New York.	58.71	61.51
Louisiana	Newport News Co.	64.73	66.50
Vermont	Fore River Shipbuild. Co.	29.5	31.5
Kansas	New York S. B. Co.	35.6	40.1
Minnesota	Newport News Co.	50.24	52.84
Mississippi	Wm. Cramp & Sons.	15.26	17.84
Idaho	Wm. Cramp & Sons.	13.4	15.39
ARMORED CRUISERS.			
Pennsylvania	Wm. Cramp & Sons.	97.03	98.25
West Virginia	Newport News Co.	97.00	98.5
California	Union Iron Works.	66.7	68.7
Colorado	Wm. Cramp & Sons.	98.42	99.27
Maryland	Newport News Co.	93.41	95.14
South Dakota	Union Iron Works.	64.1	65.9
Tennessee	Wm. Cramp & Sons.	58.71	60.53
Washington	New York Shipbuild. Co.	55.3	60.7
PROTECTED CRUISERS.			
Chattanooga	Lewis Nixon.	99.13	99.13
Galveston	Wm. R. Trigg Co.	95.00	96.00
St. Louis	Neafie & Levy Co.	56.6	58.5
Milwaukee	Union Iron Works.	63.2	65.1
Charleston	Newport News Co.	86.06	88.32
GUNBOATS.			
Dubuque	Gas Engine & Power Co.	72.8	77.6
Paducah	Gas Engine & Power Co.	68.4	73.1
TRAINING SHIPS.			
Cumberland	Navy Yard, Boston.	85.00	88.00
Intrepid	Navy Yard, Mare Island.	67.5	72.00
TRAINING BRIG.			
Boxer	Navy Yard, Portsmouth.	95.00	96.00
TORPEDO BOATS.			
Stringham	Harlan & Hollingsw'h Co.	99.00	99.00
Goldsborough	Wolff & Zwicker.	99.00	99.00
Nicholson	Lewis Nixon.	99.00	99.00
O'Brien	Lewis Nixon.	98½	99.00

The second of the ice-breaking steamers ordered by the Dominion government for the St. Lawrence has reached Quebec. She was built in Scotland, the principal dimensions being: Length, 245 ft.; breadth, 40½ ft.; depth, 18 ft., with a gross tonnage of about 1,350 tons. The vessel is specially strengthened in order to resist pressure, the shell plating at bows and in other parts being of double thickness, with intermediate frames extending fore and aft. The keel, stem, sternpost, propeller, brackets and rudder are extra strong and heavy, and made of nickel steel. On the stern-post a cast-steel knife is fitted to break ice when working astern, and to protect the rudder. She is propelled by twin screws, and is expected to develop a high rate of speed. The steamers will be used to prevent the formation of the ice bridge at Cap Rouge, and to make a way for steamers through ice, if necessary, to get them to sea. The project for trying to lengthen the period of navigation to Montreal has been abandoned for the season.

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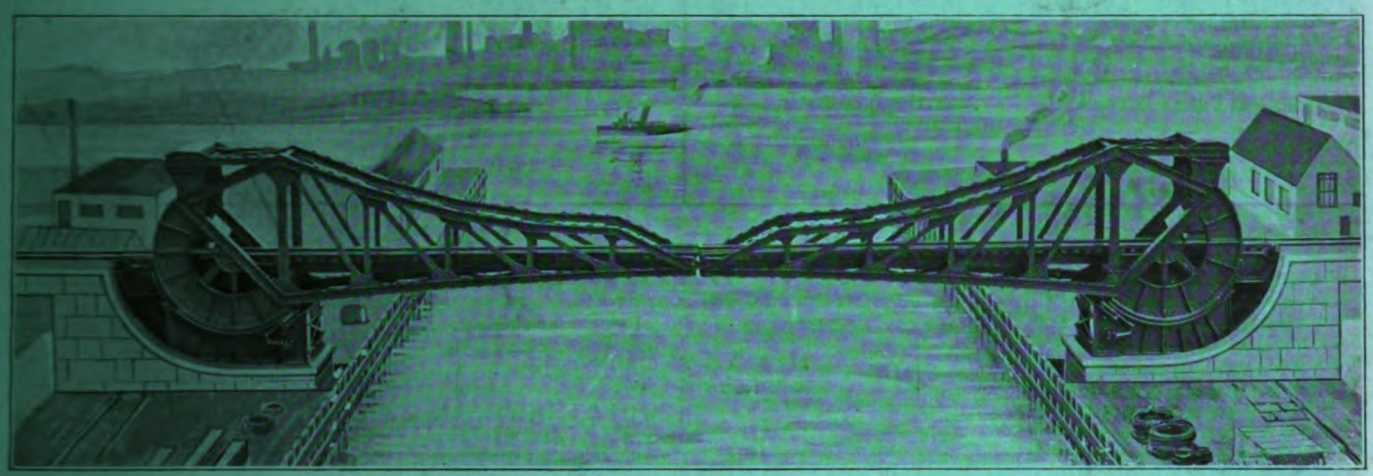

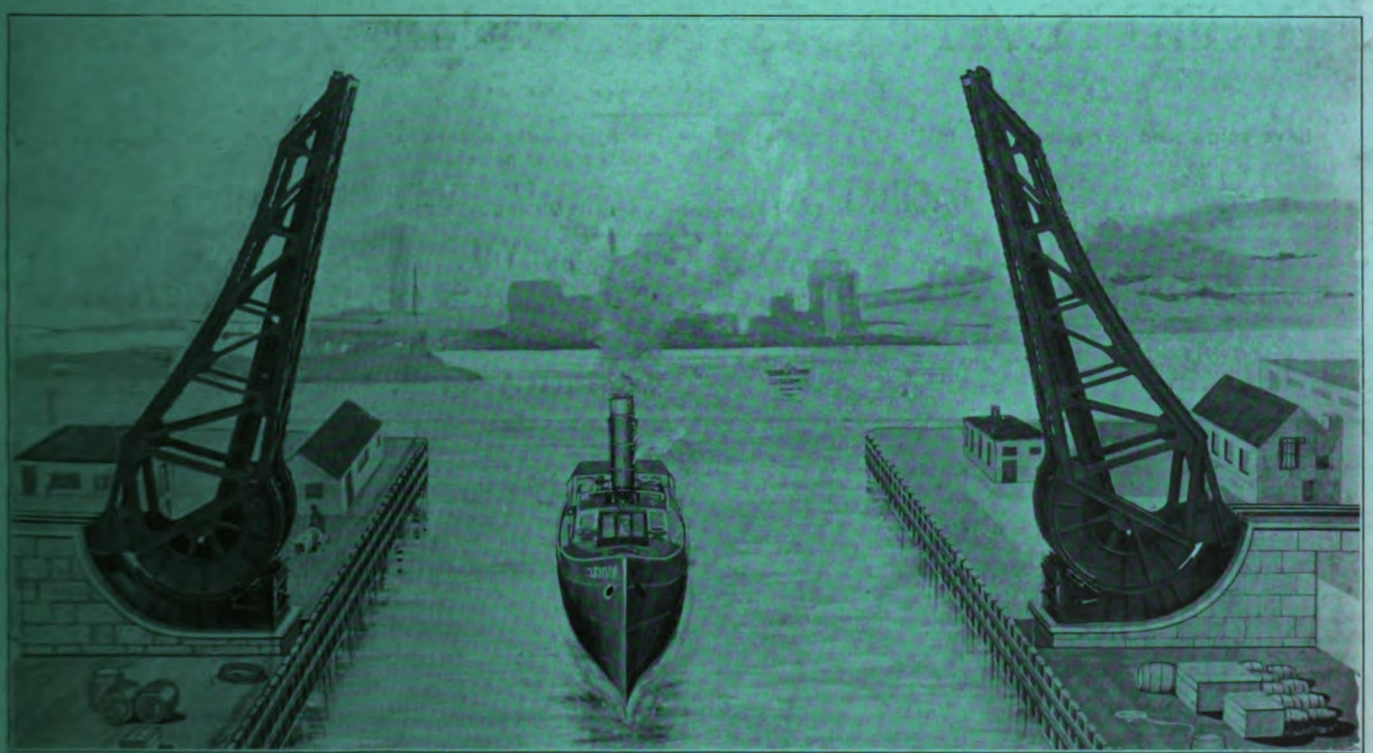

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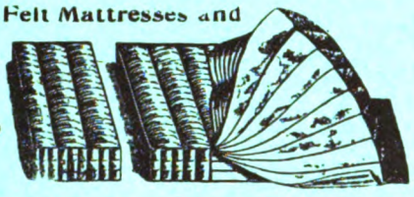

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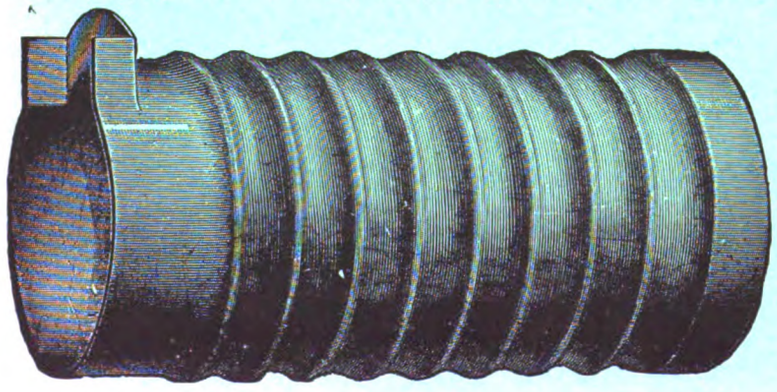

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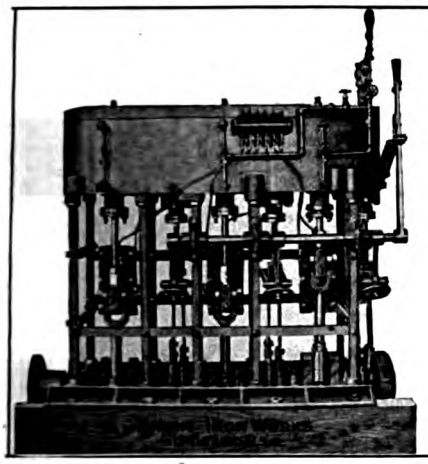

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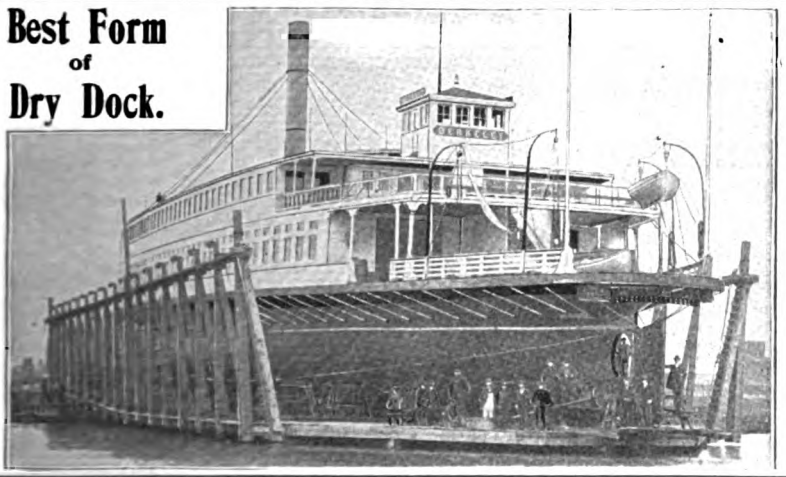

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Two Ship Yards offer every Facility for the Repair of both Steel and Wooden Vessels.

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RUDDER PIT IN EACH DOCK. *ELECTRIC LIGHTS FOR NIGHT WORK.*

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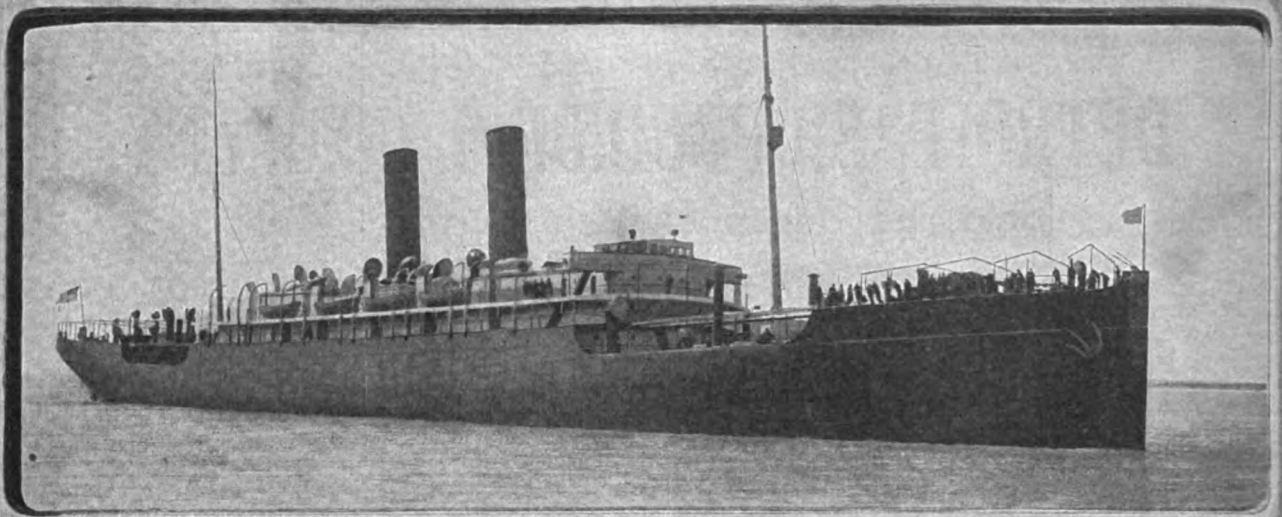

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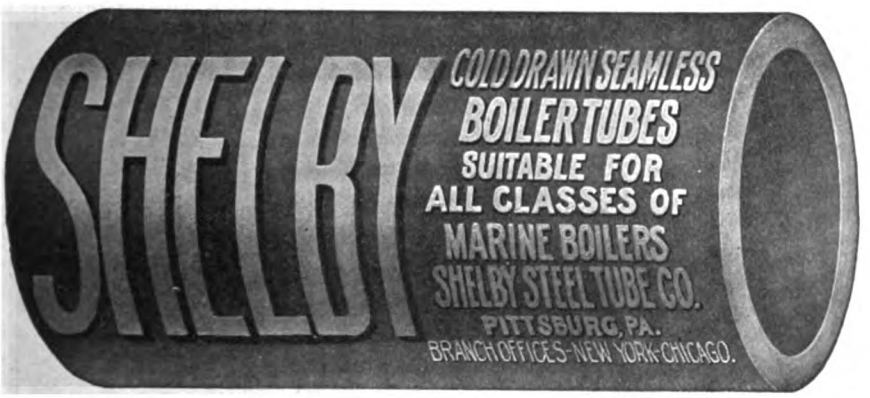

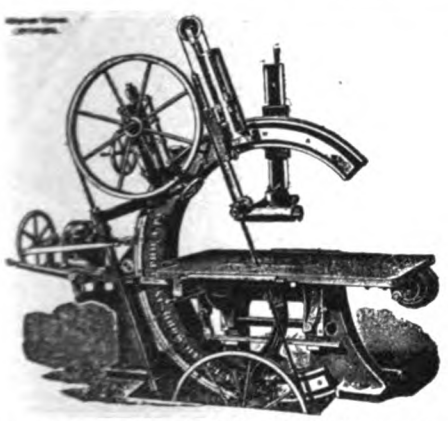

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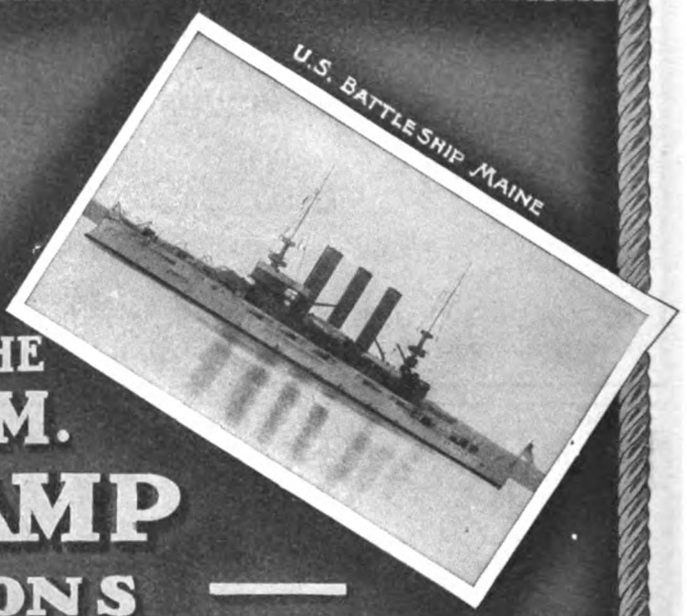

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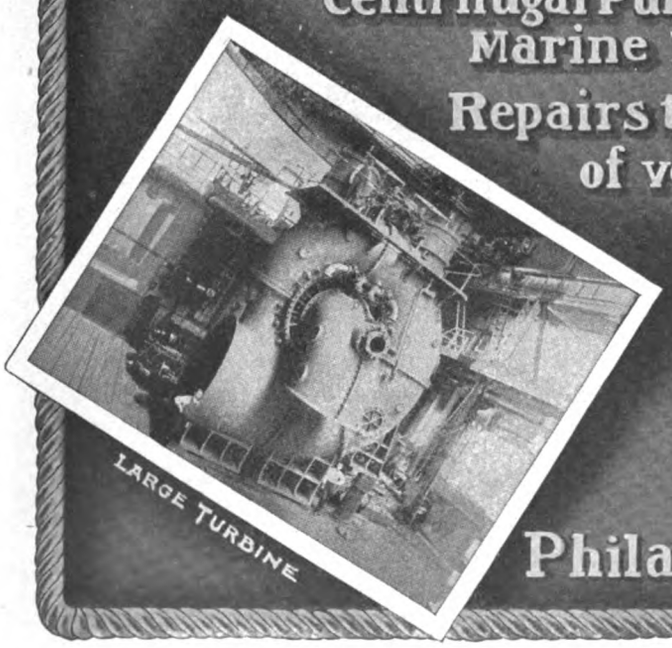

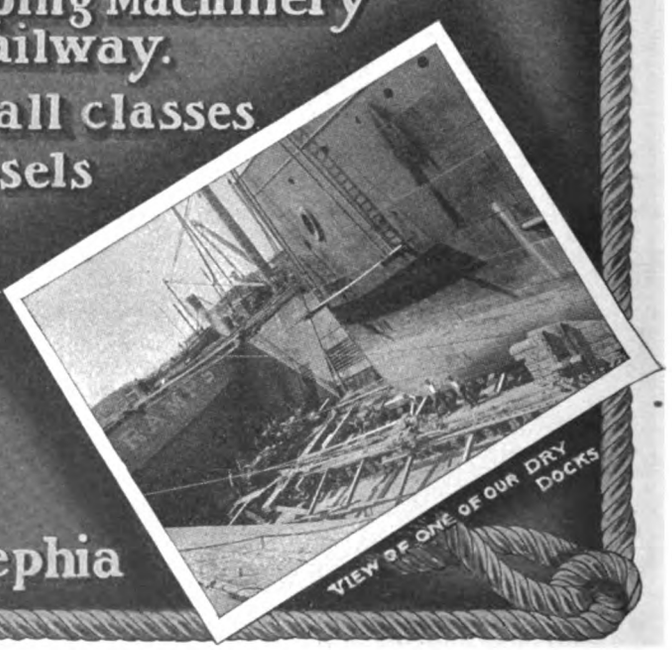

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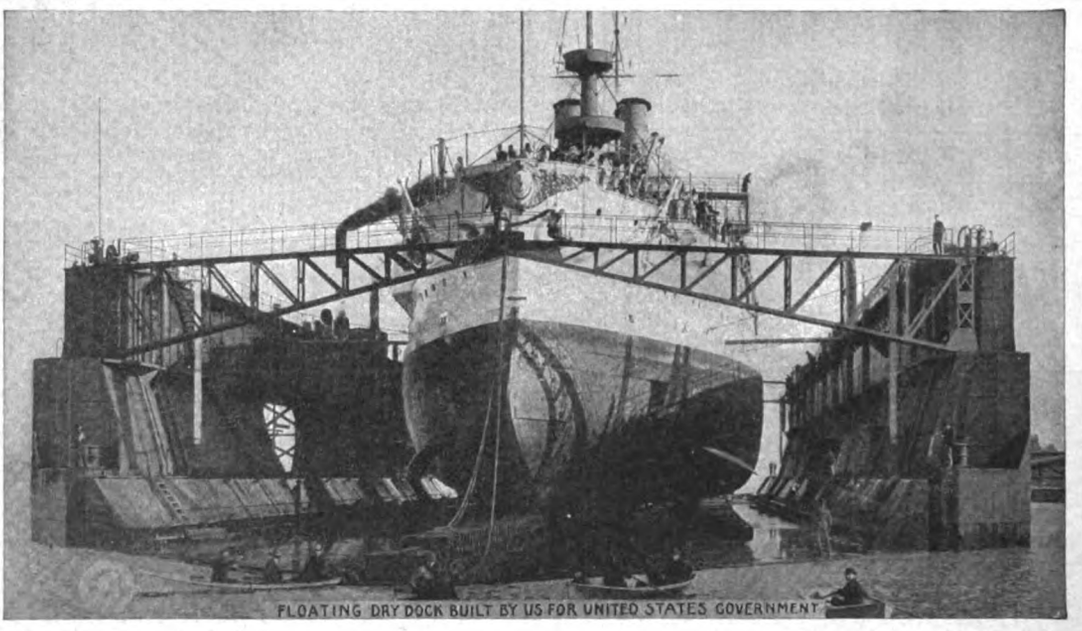

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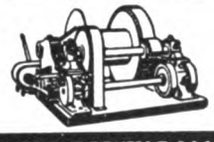

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HOISTING ENGINES
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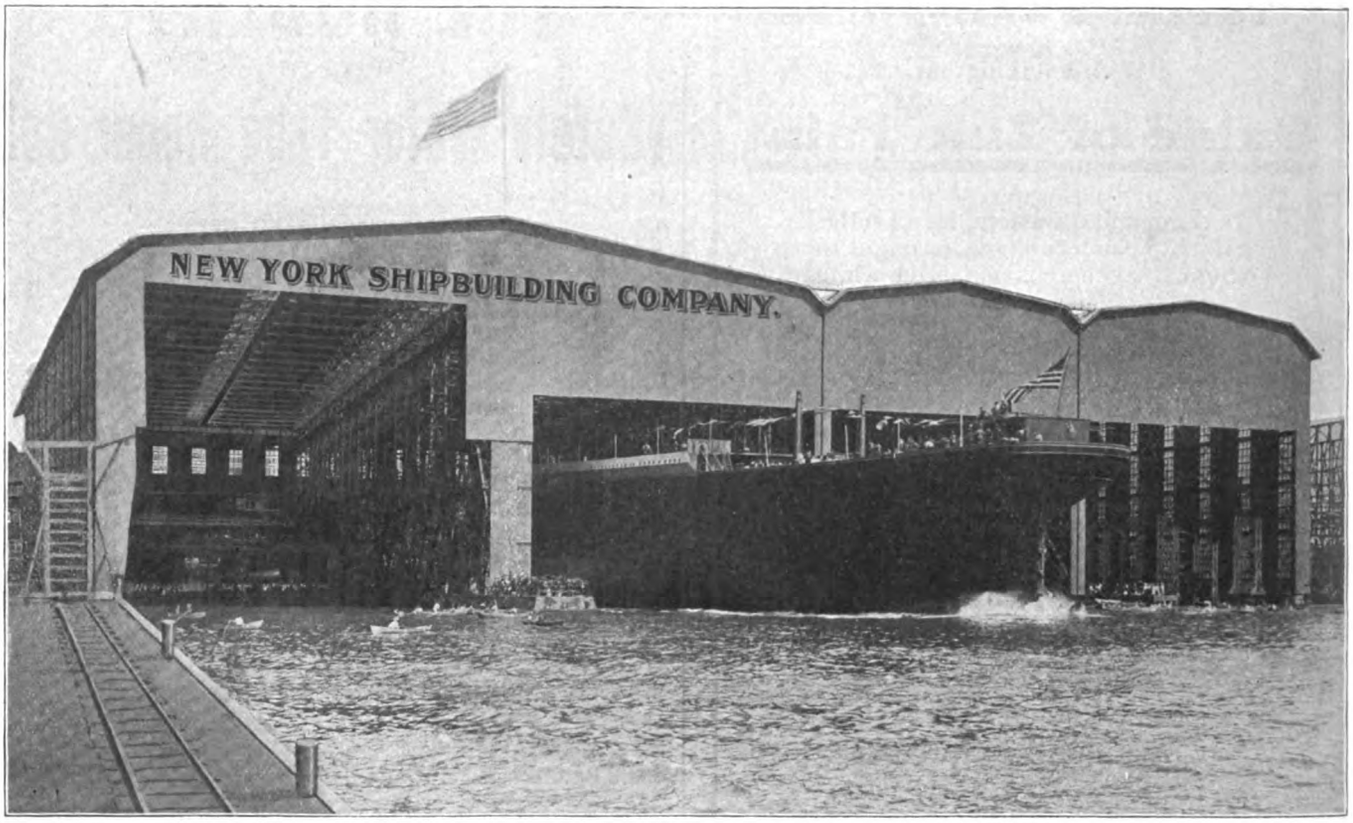

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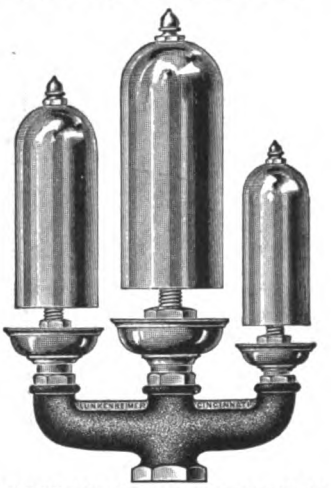

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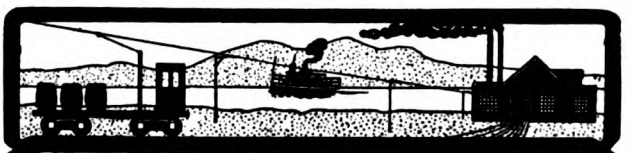

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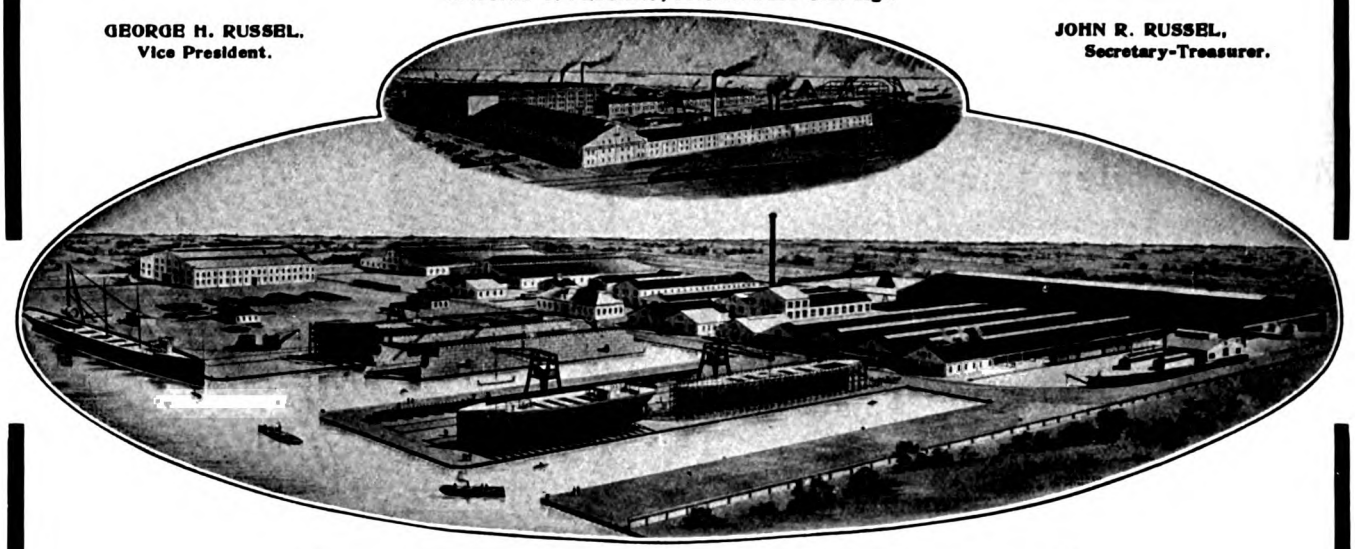

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English Royal Navy	966,300 "
Russian Imperial Navy	224,500 "
Japanese Imperial Navy	122,700 "
Austrian Imperial Navy	56,700 "
Italian Royal Navy	13,500 "
Chilian Navy	26,500 "
Argentine Navy	13,000 "
The "Messageries Maritimes" Company	87,600 "
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Made for Marine Work.

Also Reducing Valves, Steam Separators and expansion Traps for Marine Purpose.

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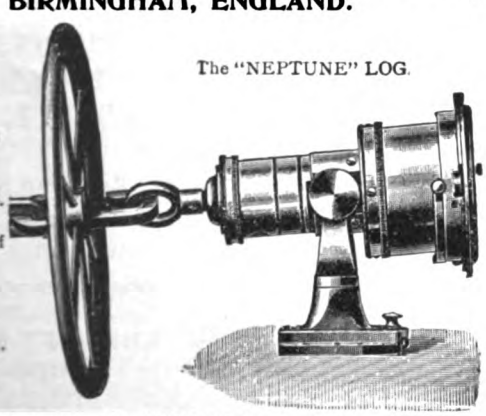

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PROPOSALS FOR DREDGE.—Mississippi River Commission, Fullerton Building, St. Louis, Mo., Jan 16, 1905.—Sealed proposals, in triplicate, for construction and delivery of self-propelling hydraulic dredge and ponton pipe line will be received here until 12 noon, standard time, March 17, 1905, and then publicly opened. Information furnished on application. WM. B. LADUE, Capt., Eng'rs, Sec'y. Mar. 9

U. S. ENGINEER OFFICE, Jones Building, Detroit, Mich., January 16, 1905. Sealed proposals for dredging in lower Detroit River, will be received here until 2 p. m., standard time, February 16, 1905, and then publicly opened. Information furnished on application. CHAS E L. B DAVIS, Lieut. Col., Eng'rs. Feb. 9

U. S. ENGINEER OFFICE, 1687 Indiana ave., Chicago, Ill., Jan. 4, 1905. Sealed proposals for dredging and constructing docks in Chicago river, Ill., will be received here until 12 noon, Feb. 4, 1905, and then publicly opened. Information on application. O. H. ERNST, Col., Engrs. Feb. 2

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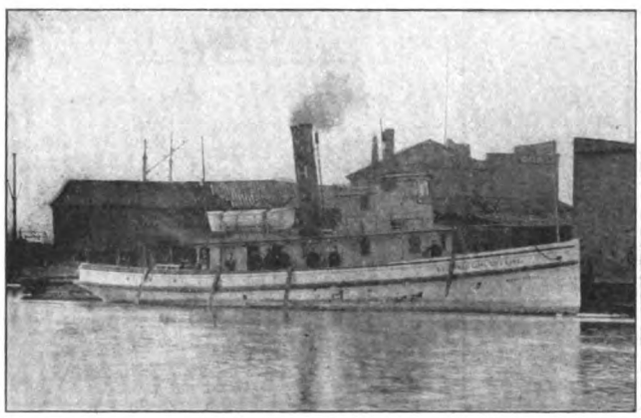

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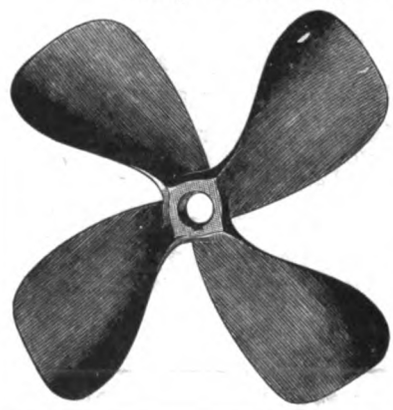

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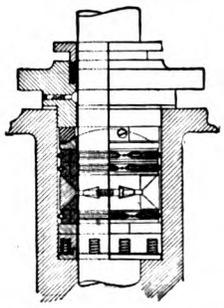

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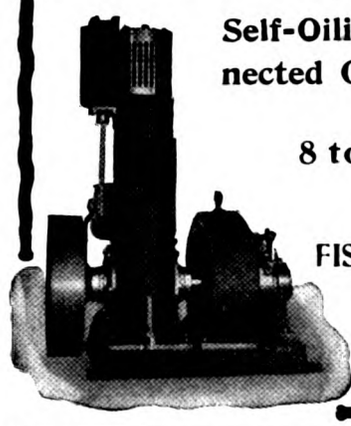

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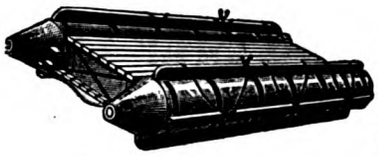

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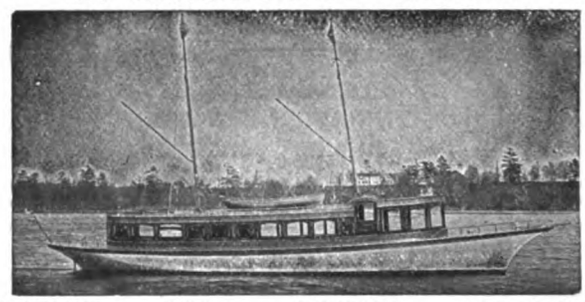

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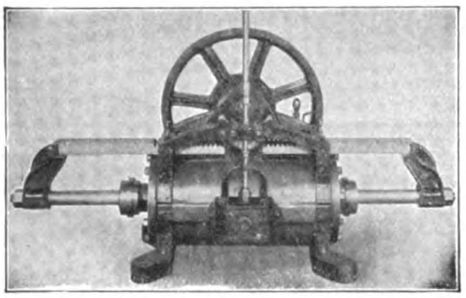

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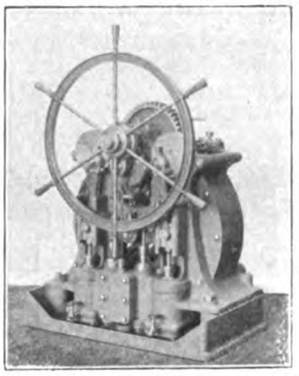

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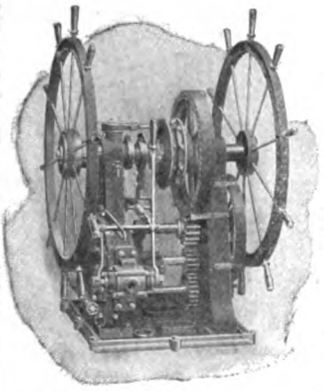

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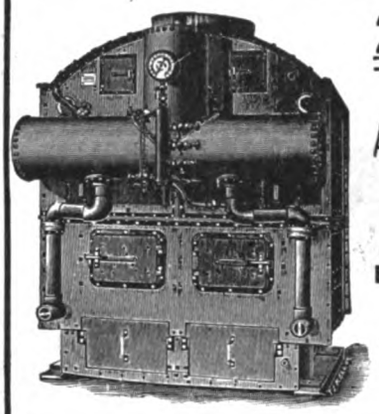

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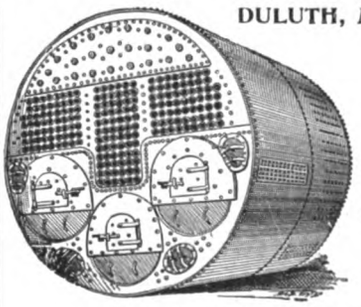

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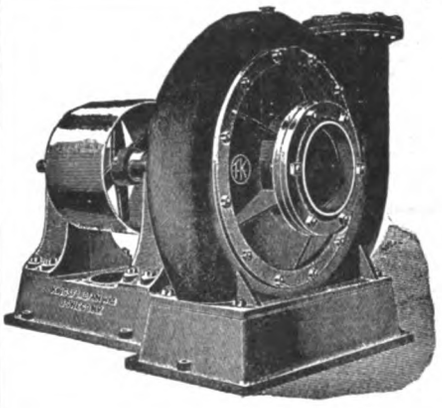

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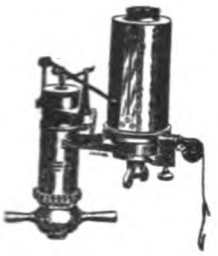

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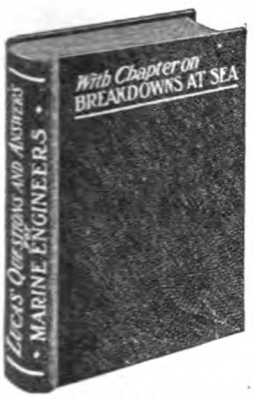

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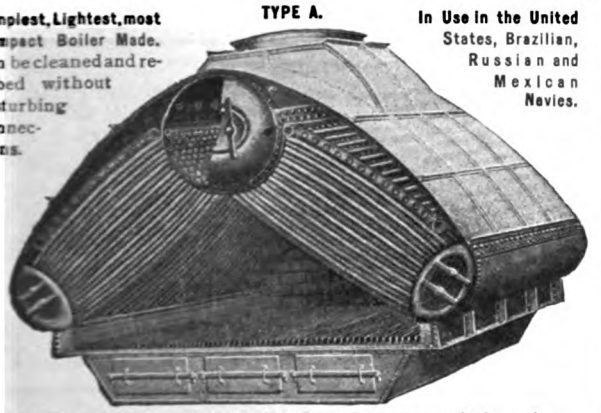

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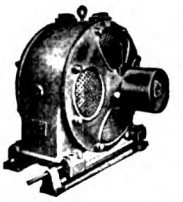

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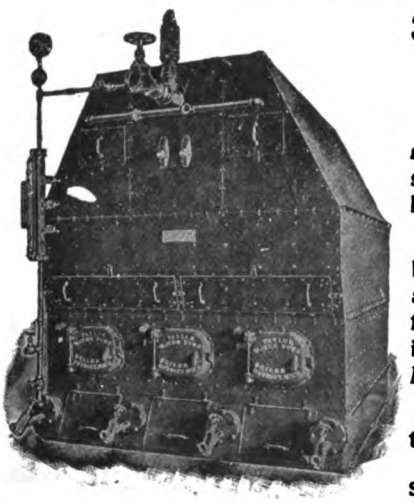

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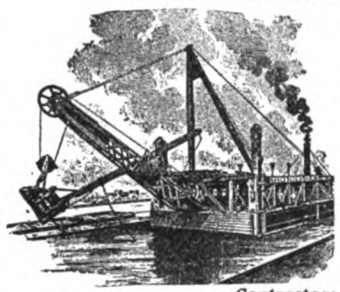

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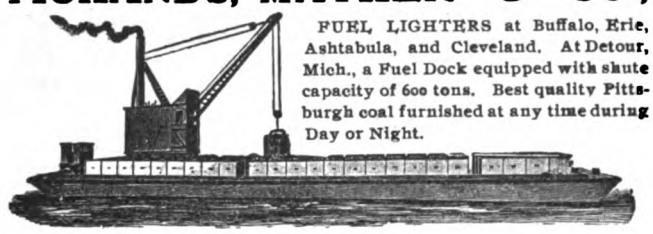

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Buyers' Directory of the Marine Trade

For a more complete classification than that represented by advertisers in the Marine Review, see the BLUE BOOK OF AMERICAN SHIPPING, marine and naval directory of the United States, published by the Marine Review, Cleveland.

See accompanying index of Advertisers for full addresses of concerns in this directory.

AIR COMPRESSORS, AIR HOISTS, ETC.
Dake Engine Co.....Grand Haven, Mich.
Great Lakes Engineering Works.....Detroit.
Mietz, Aug. .....New York.

AIR PORTS, DEAD LIGHTS, ETC.
Marine Mfg. & Supply Co.....New York.

AIR PUMPS AND APPLIANCES.
Fore River Ship & Engine Co..Quincy, Mass.
Great Lakes Engineering Works.....Detroit.

ANCHORS.
Bowers, L. M. & Co.....Binghamton, N. Y.
DeGrauw, Aymar & Co.....New York.
Seaboard Steel Casting Co.....Chester, Pa.

ANTI-FOULING AND ANTI-CORROSIVE COMPOSITION FOR STEEL VESSELS.
Holzapfel's American Composition Co..New York.

ANTI-FRICTION METALS.
Cramp, Wm. & Sons.....Philadelphia.
Victor Metals Co.....Braintree, Mass.

ARTIFICIAL DRAFT FOR BOILERS.
American Ship Building Co.....Cleveland.
Detroit Ship Building Co.....Detroit.
Great Lakes Engineering Works.....Detroit.
Sturtevant, B. F., Co.....Hyde Park, Mass.

ASH EJECTORS.
Great Lakes Engineering Works.....Detroit.

ATTORNEYS AND PROCTORS IN ADMIRALTY.
Gilchrist, Albert J.....Cleveland.
Goulder, Holding & Masten.....Cleveland.
Hoyt, Dustin & Kelley.....Cleveland.
Kremer, C. E.....Chicago.
MacDonald, Ray G.....Chicago.
Potter & Potter .....Buffalo.
Shaw, Warren, Cady & Oakes.....Detroit.
White, Johnson, McCaslin & Cannon Cleveland.

BAROMETERS, MARINE GLASSES, ETC.
Ritchie, E. S. & Sons.....Brookline, Mass.

BELTING, RUBBER.
New York Belting & Packing Co....New York.

BLOCKS, SHEAVES, ETC.
Boston & Lockport Block Co....Boston, Mass.
Cleveland Block Co.....Cleveland.

BLOWERS.
Sturtevant, B. F. Co. .....Hyde Park, Mass.

BOAT BUILDERS.
Drein, Thos. & Son.....Wilmington, Del.
Kahnweiler's Sons, David.....New York.
Lane & DeGroot ....Long Island City, N. Y.
Marine Construction & D. D. Co.....
.....Mariner's Harbor, S. I., N. Y.
Truscott Boat Mfg. Co....St. Joseph, Mich.
Willard, Chas. P. & Co.....Chicago.

BOILER COMPOUNDS.
Dearborn Drug & Chemical Works....Chicago.

BOILER MANUFACTURERS.
Almy Water Tube Boiler Co.Providence, R. I.
American Ship Building Co.....Cleveland.
Atlantic Works .....East Boston, Mass.
Babcock & Wilcox Co.....New York.
Bertram Engine Works Co., Ltd. .....
..... Toronto, Can.
Chicago Ship Building Co.....Chicago.
Cramp, Wm. & Sons.....Philadelphia.
Delauney, Belleville & Co..St. Denis, France.
Detroit Ship Building Co.....Detroit.
Fletcher, W. A. & Co.....Hoboken, N. J.
Fore River Shipbuilding Co .....Quincy, Mass
Georgian Bay Engineering Works.....
..... Midland, Ont.
Great Lakes Engineering Works.....Detroit.

BOILER MANUFACTURERS—Continued.
Jenks Ship Building Co....Port Huron, Mich.
Kingsford Foundry & Machine Works....
.....Oswego, N. Y.
Marine Iron Works ..... Chicago.
Maryland Steel Co..... Sparrows Point, Md.
Milwaukee Dry Dock Co.....Milwaukee.
Mosher Water Tube Boiler Co....New York.
Newport News Ship Building Co.....
.....Newport News, Va.
New York Shipbuilding Co.....Camden, N. J.
Northwestern Steam Boiler & Mfg. Co....
..... Duluth, Minn.
Roberts Safety Water Tube Boiler Co....
..... New York.
Stirling, The Co.....Chicago.
Superior Ship Building Co....Superior, Wis.
Taylor Water Tube Boiler Co.....Detroit.
Willard, Chas. P. & Co.....Chicago.

BOILER RIVETS.
Bourne-Fuller Co.....Cleveland.

BOILER STAYBOLTS, IRON OR STEEL, HOLLOW OR SOLID.
Falls Hollow Staybolt Co..Cuyahoga Falls, O.

BOILER TUBES, MARINE.
Reading Iron Co.....Reading, Pa.

BRASS AND BRONZE CASTINGS.
Cramp, Wm. & Sons.....Philadelphia.
Fore River Ship & Engine Co..Quincy, Mass.
Great Lakes Engineering Works.....Detroit.
Lunkenheimer Co. .....Cincinnati.
Macbeth Iron Co.....Cleveland.
Victor Metals Co.....Braintree, Mass.

BRIDGES, BUILDERS OF.
Scherzer Rolling Lift Bridge Co....Chicago.

BUCKETS, ORE AND COAL.
Brown Hoisting & Conveying Machine Co.
..... Cleveland.
McMyler Mfg. Co..... Cleveland.

CABIN AND CABINET FINISHING WOODS.
Martin-Barriss Co.....Cleveland.

CAPSTANS.
American Ship Windlass Co..Providence, R. I.
Hyde Windlass Co.....Bath, Me.
Marine Mfg. & Supply Co.....New York.

CEMENT, IRON FOR REPAIRING LEAKS.
Smooth-On Mfg. Co.....Jersey City, N. J.

CHAINS.
Lebanon Chain Works.....Lebanon, Pa.
Woodhouse Chain Works.....Trenton, N. J.

CHAIN CONVEYORS, HOISTS.
Brown Hoisting Machinery Co. (Inc.)....
..... Cleveland.
General Electric Co.....Schenectady, N. Y.
Westinghouse Electric & Mfg. Co.....
.....Pittsburg, Pa.

CHAIN HOISTS.
Boston & Lockport Block Co....Boston, Mass.
Dake Engine Co.....Grand Haven, Mich.

CHARTS.
Penton Publishing Co. .....Cleveland.
Potter, J. D.....London.

CLOCKS (Marine and Ship's Bell) AND CHRONOMETERS.
Ashton Valve Co.....Boston.
Ritchie, E. S. & Sons.....Brookline, Mass.

COAL PRODUCERS AND SHIPPERS.
Hanna, M. A. & Co.....Cleveland.
Pickands, Mather & Co.....Cleveland.
Pittsburg Coal Co.....Cleveland.

COAL AND ORE HANDLING MACHINERY.
Brown Hoisting Machinery Co. (Inc.) ..
..... Cleveland.
McMyler Mfg. Co..... Cleveland.

COMPASSES.
Ritchie, E. S. & Sons.....Brookline, Mass.

COMPOSITIONS FOR SHIP'S BOTTOMS.
Holzapfel's American Compositions Co.New York.

CONDENSORS.
Great Lakes Engineering Works.. Detroit.
Thropp & Sons Co., John E....Trenton, N. J.

CONTRACTORS SUPPLIES.
Contractors Supply & Equipment Co., Chicago.

CONTRACTORS FOR PUBLIC WORKS.
Buffalo Dredging Co.....Buffalo.
Chicago & Gt. Lakes Dredge & Dock Co.
..... Chicago.
Dunbar & Sullivan Dredging Co.....Buffalo.
Fitz-Simons & Connell Co.....Chicago.
Hickler Bros. .....Sault Ste. Marie, Mich.
Lake Superior Contracting & Dredging Co.,
.....Duluth, Minn.
Smith Co., L. P. & J. A.....Cleveland.
Starke Dredge & Dock Co., C. H..Milwaukee.
Sullivan, M. .....Detroit.

CORDAGE.
Baker & Co., H. H.....Buffalo.
DeGrauw, Aymar & Co.....New York.
Upson-Walton Co.....Cleveland.

CORK JACKETS AND RINGS.
Armstrong Cork Co.....Pittsburg, Pa.
Kahnweiler's Sons, D.....New York.

CRANES, TRAVELING.
Brown Hoisting Machinery Co.....Cleveland.
McMyler Mfg. Co.....Cleveland.

DIVING APPARATUS.
Morse, A. J. & Son.....Boston.
Schrader's Son, A.....New York.

DREDGING CONTRACTORS.
Buffalo Dredging Co.....Buffalo.
Chicago & Gt. Lakes Dredge & Dock Co..
..... Chicago.
Dunbar & Sullivan Dredging Co.....Buffalo.
Fitz-Simons & Connell Co.....Chicago.
Hickler Bros. .....Sault Ste. Marie, Mich.
Lake Superior Contracting & Dredging Co.,
.....Duluth, Minn.
Smith Co., L. P. & J. A.....Cleveland.
Starke Dredge & Dock Co., C. H. .Milwaukee.
Sullivan, M. .....Detroit.

DRYING APPARATUS.
Sturtevant, B. F., Co.....Hyde Park, Mass.

DRY DOCKS.
American Ship Building Co.....Cleveland.
Atlantic Works .....East Boston, Mass.
Buffalo Dry Dock Co.....Buffalo.
Chicago Ship Building Co.....Chicago.
Craig Ship Building Co.....Toledo, O.
Cramp, Wm. & Sons.....Philadelphia.
Detroit Ship Building Co.....Detroit.
Great Lakes Engineering Works.....Detroit.
Lockwood Mfg. Co.....East Boston, Mass.
Milwaukee Dry Dock Co.....Milwaukee.
Newport News Ship Building Co.....
.....Newport News, Va.
Shipowners Dry Dock Co.....Chicago.
Superior Ship Building Co....Superior, Wis.

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ELECTRIC HOISTS AND CRANES.
Fisher Electrical Works.....Detroit.
General Electric Co.....Schenectady, N. Y.
Westinghouse Electric & Mfg. Co.....
..... Pittsburg, Pa.

ELECTRIC LIGHT AND POWER PLANTS.
Fisher Electrical Works.....Detroit.
General Electric Co.....Schenectady, N. Y.
Mietz, Aug. .....New York.
Sturtevant, B. F. Co.....Hyde Park, Mass.
Thropp & Sons, John E.....Trenton, N. J.
Westinghouse Electric & Mfg. Co.....
..... Pittsburg, Pa.

ENGINE BUILDERS, MARINE.
American Ship Building Co.....Cleveland.
Atlantic Works .....East Boston, Mass.
Bertram Engine Works Co., Ltd. .....
..... Toronto, Can.
Chicago Ship Building Co.....Chicago.
Chase Machine Co.....Cleveland.
Cramp, Wm. & Sons.....Philadelphia.
Craig Ship Building Co.....Toledo, O.
Lake Engine Co.....Grand Haven, Mich.
Detroit Ship Building Co.....Detroit.
Fletcher, W. & A. Co.....Hoboken, N. J.
Fore River Shipbuilding Co.....Quincy, Mass.
Great Lakes Engineering Works Detroit, Mich.
Hall Bros. .....Philadelphia.
Jenks Ship Building Co....Port Huron, Mich.
Lockwood Mfg. Co.....East Boston, Mass.
Marine Iron Works ..... Chicago.
Maryland Steel Co.....Sparrows Point Md.
Mietz, Aug. .....New York.
Milwaukee Dry Dock Co.....Milwaukee.
Mosher, Chas. D.....New York.
Morton Steering Engine Co.....New York.
Newport News Ship Building Co.....
.....Newport News, Va.
New York Shipbuilding Co.....Camden, N. J.
Northwestern Steam Boiler & Mfg. Co....
.....Duluth, Minn.
Roach's Ship Yard .....Chester, Pa.
Sheriffs Mfg. Co.....Milwaukee.
Superior Ship Building Co....Superior, Wis.
Thropp, J. E. & Sons Co.....Trenton, N. J.
Trout, H. G.....Buffalo.
Willard, Chas. P. & Co.....Chicago.

ENGINE ROOM TELEGRAPH, CALL BELLS, ETC.
Cory, Chas. & Son.....New York.
Marine Mfg. Supply Co.....New York.

ENGINE TESTING.
Kreer & Parsons..... Chicago.

ENGINEERING SPECIALTIES AND SUPPLIES.
Crane Co.....Chicago.
Kieley & Mueller .....New York.
Lunkenheimer Co. .....Cincinnati.
New York Belting & Packing Co..New York.
Northwestern Steam Boiler & Mfg. Co....
.....Duluth, Minn.

ENGINEERS, MARINE, MECHANICAL, CONSULTING.
Bland, Alexander .....Cleveland.
Hunt, Robt. W. & Co.....Chicago.
Kidd, Joseph .....Duluth, Minn.
Kreer & Parsons.....Chicago.
Kneejoy, H. O.....Buffalo.
Morreson & Drake .....Philadelphia.
Mosher, Chas. D.....New York.
Nagey, James .....Cleveland.
Rice, Henry .....Buffalo.
Roelker, H. B.....New York.
Wood, W. J. .....Chicago.

FANS FOR VENTILATION, EXHAUST, ETC.
Sturtevant, B. F. Co.....Hyde Park, Mass.

FEED WATER PURIFIERS AND HEATERS.
Repair and Supply Co., Jas.....New York.
Valve Co.....Troy, N. Y.

FIXTURES FOR LAMPS, OIL OR ELECTRIC.
General Electric Co.....Schenectady, N. Y.
Westinghouse Electric & Mfg. Co.....
.....Pittsburg, Pa.

FORGES.
Sturtevant, B. F. Co.....Boston.

FORGINGS FOR CRANK, PROPELLER OR THRUST SHAFTS, ETC.
Cleveland City Forge & Iron Co....Cleveland.
Fore River Shipbuilding Co.....Quincy, Mass.
Macbeth Iron Co.....Cleveland.

FLUE WELDING.
Fix's, S. Sons .....Cleveland.

FUEL ECONOMIZERS.
Sturtevant Co., B. F.....Hyde Park, Mass.

FUELING COMPANIES AND COAL DEALERS.
Hanna, M. A. & Co.....Cleveland.
Parker Bros. Co., Ltd.....Detroit.
Picklands, Mather & Co.....Cleveland.
Pittsburg Coal Co.....Cleveland.
Smith, Stanley B., & Co.....Detroit,
Smith Coal & Dock Co., Stanley B.Toledo, O.

FURNACES FOR BOILERS.
Continental Iron Works.....New York.

GASKETS, RUBBER.
New York Belting & Packing Co..New York.

GAS BUOYS.
Safety Car Heating & Lighting Co..New York.

GAS AND GASOLINE ENGINES.
Chase Machine Co.....Cleveland.
Georgian Bay Engineering Works.....
..... Midland, Ont.
Reliance Mfg. Co..... Providence, R. I.

GAUGES, STEAM AND VACUUM.
American Steam Gauge & Valve Mfg. Co.
..... Boston.
Ashton Valve Co.....Boston.
Lunkenheimer Co. .....Cincinnati.

GAUGES, WATER.
Bonner & Co., Wm. T.....Boston.
Lunkenheimer Co. .....Cincinnati, O.

GRAPHITE.
Dixon Crucible Co., Joseph..Jersey City, N. J.

HAMMERS, STEAM.
Chase Machine Co.....Cleveland.

HEATING APPARATUS.
Sturtevant, B. F. Co.....Hyde Park, Mass.

HOISTS FOR CARGO, ETC.
American Ship Building Co.....Cleveland.
Brown Hoisting Machinery Co. (Inc.)....
..... Cleveland.
Chase Machine Co.....Cleveland.
General Electric Co.....New York.
Georgian Bay Engineering Works.....
..... Midland, Ont.
Hyde Windlass Co.....Bath, Me.
McMyler Mfg. Co.....Cleveland.
Marine Iron Co.....Bay City.
Mietz, Aug. .....New York.
Westinghouse Electric & Mfg. Co.....
.....Pittsburg, Pa.

HOLLOW STAYBOLT IRON.
Falls Hollow Staybolt Co...Cuyahoga Falls, O.

HOSE, RUBBER.
New York Belting & Packing Co..New York.

HYDRAULIC DREDGES.
Great Lakes Engineering Works.....Detroit.

HYDRAULIC TOOLS.
Watson-Stillman Co., The.....New York.

ICE MACHINERY.
Great Lakes Engineering Works.....Detroit.
Roelker, H. B.....New York.

INDICATORS FOR STEAM ENGINES.
American Steam Gauge Co.....Boston.
Ashton Valve Co.....Boston.

INJECTORS.
American Injector Co.....Detroit.
Crane Co. .....Chicago.
Jenkins Bros. .....New York.
Lunkenheimer Co. .....Cincinnati.
Penberthy Injector Co.....Detroit, Mich.

INSURANCE, MARINE.
Elphicke, C. W. & Co.....Chicago.
Fleming & Co., E. J.....Chicago.
Frankfort Marine, A. & P. G. Ins. Co....
..... New York.

INSURANCE, MARINE—Continued.
Gilchrist & Co., C. P.....Cleveland.
Hawgood & Co., W. A.....Cleveland.
Helm & Co., D. T.....Duluth.
Hutchinson & Co.....Cleveland.
McCarthy, T. R.....Montreal.
McCurdy, Geo. L.....Chicago.
Mitchell & Co.....Cleveland.
Parker Bros. Co., Ltd.....Detroit.
Peck, Chas. E. & W. F..New York & Chicago.
Prindiville & Co.....Chicago.
Richardson, W. C.....Cleveland.
Sullivan, D. & Co.....Chicago.
Voss, F. D.....New York.

IRON CASTINGS.
Reading Iron Co.....Reading, Pa.

IRON ORE AND PIG IRON.
Bourne-Fuller Co.....Cleveland, O.
Hanna, M. A. & Co.....Cleveland.
Pickands, Mather & Co.....Cleveland.
Reading Iron Co..... .....Reading, Pa

LAMPS, INCANDESCENT.
Westinghouse Elec. & Mfg. Co.....Pittsburg, Pa.
Sawyer-Man Electric Co. .....Pittsburg, Pa.

LAUNCHES—STEAM, NAPHTHA, ELECTRIC.
Georgian Bay Engineering Works.....
..... Midland, Ont.
Marine Iron Works.....Chicago
Truscott Boat Mfg. Co.....St. Joseph, Mich.
Willard, Chas. P.....Chicago.

LIFE PRESERVERS, LIFE BOATS, BUOYS.
Armstrong, Cork Co.....Pittsburg.
Drein, Thos. & Son.....Wilmington, Del.
Kahnweiler's Sons, D. .....New York

LIGHTS, SIDE AND SIGNAL.
Russell & Watson .....Buffalo.

LOGS.
Walker & Sons, Thomas ....Birmingham, Eng.
Also Ship Chandlers.

LUBRICATING GRAPHITE.
Dixon Crucible Co., Joseph..Jersey City, N. J.

LUBRICATORS.
Crane Co. .....Chicago.
Lunkenheimer Co. .....Cincinnati.

LUMBER.
Martin-Barriss Co.....Cleveland.

MACHINISTS.
Chase Machine Co.....Cleveland.
Hickler Bros. .....Sault Ste. Marie, Mich.
Lockwood Mfg. Co.....East Boston, Mass.

MACHINE TOOLS (WOOD WORKING).
Atlantic Works, Inc.....Philadelphia.

MARINE RAILWAYS.
Hickler Bros. .....Sault Ste. Marie, Mich.

MARINE RAILWAYS, BUILDERS OF.
Crandall & Son, H. I....East Boston, Mass.

MATTRESSES, CUSHIONS, BEDDING.
Fogg, M. W.....New York.

MECHANICAL DRAFT FOR BOILERS.
American Ship Building Co.....Cleveland.
Detroit Ship Building Co.....Detroit.
Great Lakes Engineering Works ..Detroit.
Sturtevant, B. F. Co.....Hyde Park, Mass.

METALLIC PACKING.
Katzenstein, L. & Co.....New York.

METAL POLISH.
Bertram's Oil Polish Co.....Boston

MOTORS, GENERATORS—ELECTRIC.
Fisher Electrical Works.....Detroit.
General Electric Co.....Schenectady, N. Y.
Sturtevant, B. F. Co..... Hyde Park, Mass.
Westinghouse Electric & Mfg. Co.....
..... Pittsburg, Pa.

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NAUTICAL INSTRUMENTS.
Ritchie, E. S., & Sons.....Brookline, Mass.

NAUTICAL SCHOOLS.
Chicago Nautical School. ..... Chicago.

NAVAL ARCHITECTS.
Hynd, Alexander .....Cleveland.
Kidd, Joseph.....Duluth, Minn.
Kreer & Parsons. .....Chicago.
Lovejoy, H. O.....Buffalo.
Matteson & Drake.....Philadelphia.
Mosher, Chas. D.....New York.
Nacey, James .....Cleveland.
Rice, Henry .....Buffalo.
Wood, W. J.....Chicago.

OAKUM.
DeGrauw, Aymar & Co.....New York.
Stratford, Oakum Co.....Jersey City, N. J.

OIL ENGINES.
Mietz, Aug. .....New York.

OILS AND LUBRICANTS.
Dixon Crucible Co., Joseph..Jersey City, N. J.
Standard Oil Co.....Cleveland.

PACKING.
Crane Co. .....Chicago.
Jenkins Bros. .....New York.
Katzenstein, L. & Co.....New York.
New York Belting & Packing Co...New York.

PACKING TOOL.
Matteson & Drake .....Philadelphia.

PAINTS.
Baker, Howard H. & Co.....Buffalo.
Detroit Varnish Co.....Detroit.
Detroit White Lead Works.....Detroit.
New Jersey Zinc Co.....New York.
Upson-Walton Co. .....Cleveland.

PATTERN SHOP MACHINERY.
Atlantic Works, Inc.....Philadelphia.

PILE DRIVING AND SUBMARINE WORK.
Buffalo Dredging Co.....Buffalo.
Chicago & Gt. Lakes Dredge & Dock Co.. ..... Chicago.
Dunbar & Sullivan Dredging Co.....Buffalo.
Fitz-Simons & Connell Co.....Chicago.
Hickler Bros. .....Sault Ste. Marie, Mich.
Lake Superior Contracting & Dredging Co., ...Duluth, Minn.
Parker Bros. Co., Ltd.....Detroit.
Smith Co., L. P. & J. A.....Cleveland.
Starke Dredge & Dock Co., C. H...Milwaukee.
Sullivan, M. .....Detroit.

PIPE, WROUGHT IRON.
Bourne-Fuller Co.....Cleveland, O.
Crane Co. .....Chicago.
Macbeth Iron Co.....Cleveland.
Reading Iron Co.....Reading, Pa.

PLANING MILL MACHINERY.
Atlantic Works, Inc.....Philadelphia.

PLATES—SHIP, STRUCTURAL, ETC.
Bourne-Fuller Co.....Cleveland, O.
Otis Steel Co.....Cleveland.
Reading Iron Co .....Reading Pa.

PRESSURE REGULATORS.
Kieley & Mueller .....New York.
Ross Valve Co.....Troy, N. Y.

PROPELLER WHEELS.
American Ship Building Co.....Cleveland.
Atlantic Works .... East Boston, Mass.
Cramp, Wm. & Sons.....Philadelphia.
Detroit Ship Building Co.....Detroit.
Fore River Shipbuilding Co.....Quincy, Mass.
Great Lakes Engineering Works.. Detroit.
Hyde Windlass Co.....Bath, Me.
Jenks Ship Building Co....Port Huron, Mich.
Lockwood Mfg. Co.....East Boston, Mass.
Marine Iron Works ..... Chicago.
Milwaukee Dry Dock Co.....Milwaukee.
Newport News Ship Building Co..... .....Newport News, Va.
Roelker, H. B.....New York.
Sheriffs Mfg. Co.....Milwaukee.
Superior Ship Building Co....Superior, Wis.
Thropp & Sons Co., J. E.....Trenton, N. J.
Trout, H. G.....Buffalo.

PROJECTORS, ELECTRIC.
General Electric Co.....Schenectady, N. Y.
Westinghouse Electric & Mfg. Co..... ..... Pittsburg, Pa.

PUMPS FOR VARIOUS PURPOSES.
Blake, Geo. F., Mfg. Co.....New York.
Great Lakes Engineering Works Detroit.
Marine Iron Works ....Chicago.
Kingsford Foundry & Machine Works.... ..... Oswego, N. Y.

REFRIGERATING APPARATUS.
Great Lakes Engineering Works.....Detroit.
Roelker, H. B. .....New York.

REGISTER FOR CLASSIFICATION OF VESSELS.
Great Lakes Register .....Cleveland.
Record of American & Foreign Shipping.. .....New York.

REPAIRS—ENGINE AND BOILER.
(See also Boiler Manufacturers and Engine Builders.)
Georgian Bay Engineering Works..... .....Midland, Ont.

RIVETS, STEEL FOR SHIPS AND BOILERS.
Bourne-Fuller Co.....Cleveland, O.

SAFETY VALVES.
American Steam Gauge & Valve Mfg. Co. ..... Boston.
Ashton Valve Co.....Boston.
Crane Co. .....Chicago.
Lunkenheimer Co. .....Cincinnati.

SAIL MAKERS.
Baker, Howard H. & Co.....Buffalo.
Upson-Walton Co.....Cleveland.

SALVAGE COMPANIES.
See Wrecking Companies.

SCHOOLS—NAVIGATION.
Chicago Nautical School.....Chicago.

SEARCH LIGHTS.
General Electric Co.....Schenectady, N. Y.
Westinghouse Electric & Mfg. Co..... .....Pittsburg, Pa.

SHEARS.
See Punches, Rivets, and Shears.

SHIP AND BOILER PLATES AND SHAPES.
Bourne Fuller Co.....Cleveland, O.
Otis Steel Co.....Cleveland.
Reading Iron Co.....Reading, Pa.

SHIP BUILDERS.
American Ship Building Co.....Cleveland.
Atlantic Works .....East Boston, Mass.
Bertram Engine Works Co., Ltd. Toronto, Can.
Buffalo Dry Dock Co.....Buffalo.
Cramp, Wm. & Sons.....Philadelphia.
Craig Ship Building Co.....Toledo, O.
Chicago Ship Building Co.....Chicago.
Detroit Ship Building Co.....Detroit.
Fore River Shipbuilding Co.....Quincy, Mass.
Great Lakes Engineering Works.....Detroit.
Jenks Ship Building Co....Port Huron, Mich.
Lockwood Mfg. Co.....East Boston, Mass.
Maryland Steel Co.....Sparrows Point, Md.
Milwaukee Dry Dock Co.....Milwaukee.
Newport News Ship Building Co..... .....Newport News, Va.
New York Shipbuilding Co.....Camden, N. J.
Roach's Ship Yard .....Chester, Pa.
Shipowner's Dry Dock Co.....Chicago.
Smith & Son, Abram.....Algonac, Mich.
Willard, Chas. P. & Co.....Chicago.

SHIP CHANDLERS.
Baker, Howard H. & Co.. .....Buffalo.
Marine Mfg. & Supply Co.....New York.
Upson-Walton Co.....Cleveland.

SHIP DESIGNERS.
Kidd, Joseph.....Duluth.
Kreer & Parsons. .....Chicago.
Matteson & Drake.....Buffalo.
Rice & Lovejoy.....Buffalo.
Steel, Nacey & Hynd.....Cleveland.
Wood, W. J.....Chicago.

SHIP LANTERNS AND LAMPS.
Russell & Watson .....Buffalo.

SHIP TIMBER.
Martin-Barriss Co.....Cleveland.

SMOOTH-ON COMPOUND, FOR REPAIRS.
Smooth-On Mfg. Co.....Jersey City, N. J.

STAYBOLTS, IRON OR STEEL, HOLLOW OR SOLID.
Falls Hollow Staybolt Co..Cuyahoga Falls, O.
Reading Iron Co.....Reading, Pa.

STEAM VESSELS FOR SALE.
Gilchrist & Co., C. P. .....Cleveland.
Holmes, Samuel .....New York.
Lester, S. S.....Quebec, Can.
McCarthy, T. R.....Montreal, Can.

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American Line .....New York.
Anchor Line .....Buffalo.
Boston Steamship Co.....Boston.
International Mercantile Marine Co..... ..... Philadelphia.
New York & Cuba Mail S. S. Co.....New York
Red Star Line .....New York.
United Fruit Co .....Boston.

STEEL CASTINGS.
Otis Steel Co.....Cleveland.

STEERING APPARATUS.
American Ship Building Co.....Cleveland.
Chase Machine Co.....Cleveland.
Dake Engine Co.....Grand Haven, Mich.
Detroit Ship Building Co.....Detroit.
Hyde Windlass Co.....Bath, Me.
Jenks Ship Building Co....Port Huron, Mich.
Marine Mfg. & Supply Co.....New York.
Moulton Steering Engine Co.....New York.
Sheriffs Mfg. Co.....Milwaukee.

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Morse & Son, A. J.....Boston.
Schrader's Son, A.....New York.

SURVEYORS, MARINE.
Gaskin, Edward .....Buffalo.
Hynd, Alexander .....Cleveland.
Lovejoy, H. O.....Buffalo.
Matteson & Drake .....Philadelphia.
Parker Bros. Co., Ltd.....Detroit.
Nacey, James .....Cleveland.
Rice, Henry .....Buffalo.
Steel, Adam .....Cleveland.
Wood, W. J.....Chicago.

TESTS OF MATERIALS.
Hunt, Robert W. & Co.....Chicago.
Lunkenheimer Co .....Cincinnati, O

TILING, INTERLOCKING RUBBER.
New York Belting & Packing Co...New York.

TOOLS, METAL WORKING, FOR SHIP AND ENGINE WORKS.
Watson-Stillman Co.....New York.

TOOLS, WOOD WORKING.
Atlantic Works, Inc.....Philadelphia.

TOWING MACHINES.
American Ship Windlass Co..Providence, R. I.
Chase Machine Co.....Cleveland.

TOWING COMPANIES.
Donnelly Salvage & Wrecking Co..... .....Kingston, Ont.

TRAPS, STEAM.
Kieley & Mueller .....New York.
Sturtevant Co., B. F., ...Hyde Park, Mass.

TRUCKS.
Boston & Lockport Block Co.....Boston.

TUBING, SEAMLESS.
Shelby Steel Tube Co.....Pittsburg, Pa.

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American Steam Gauge & Valve Mfg. Co. ..... Boston.
Ashton Valve Co. ..... Boston.
Crane Co. ..... Chicago.
Jenkins Bros. ..... New York.
Kieley & Mueller ..... New York.
Lunkenheimer Co. ..... Cincinnati.
Ross Valve Co. ..... Troy, N. Y.

VALVES FOR WATER AND GAS.

Lunkenheimer Co. ..... Cincinnati.
Ross Valve Co. ..... Troy, N. Y.

VARNISHES.

Detroit Varnish Co. ..... Detroit.
Detroit White Lead Works. ..... Detroit.
New Jersey Zinc Co. ..... New York.
Also Ship Chandlers.

VENTILATING APPARATUS FOR SHIPS.

Sturtevant, B. F. Co. ..... Hyde Park, Mass.

VESSEL AND FREIGHT AGENTS.

Boland, John J. ..... Buffalo.
Brown & Co. ..... Buffalo.
Elphicke, C. W. & Co. ..... Chicago.
Fleming & Co., E. J. ..... Chicago.
Gilchrist & Co., C. P. ..... Cleveland.
Hall, John B. ..... Buffalo.
Helm & Co., D. T. ..... Duluth.

VESSEL AND FREIGHT AGENTS—Con.

Hawgood & Co., W. A. ..... Cleveland.
Holmes, Samuel ..... New York.
Hutchinson & Co. ..... Cleveland.
Lester, S. S. ..... Quebec, Can.
McCarthy, T. R. ..... Montreal.
Mitchell & Co. ..... Cleveland.
Parker Bros. Co., Ltd. ..... Detroit.
Prindiville & Co. ..... Chicago.
Richardson, W. C. ..... Cleveland.
Sullivan, D. & Co. ..... Chicago.

WATER GAUGES.

Bonner & Co., Wm. T. ..... Boston
Lunkenheimer Co. ..... Cincinnati, O.

WIRE ROPE AND WIRE ROPE FITTINGS.

Baker, H. H. & Co. ..... Buffalo.
DeGrauw, Aymar & Co. ..... New York.
Upson-Walton Co. ..... Cleveland.

WHISTLES, STEAM.

American Steam Gauge & Valve Mfg. Co. ..... Boston.
Ashton Valve Co. ..... Boston.
Lunkenheimer Co. ..... Cincinnati.

WINDLASSES.

American Ship Windlass Co. . Providence, R. I.
American Ship Building Co. ..... Cleveland.
Hyde Windlass Co. ..... Bath, Me.
Jenks Ship Building Co. ... Port Huron, Mich.
Marine Mfg. & Supply Co. ..... New York.

WINCHES.

American Ship Windlass Co. . Providence, R. I.
Georgian Bay Engineering Works. ..... Midland, Ont.
Hyde Windlass Co. ..... Bath, Me.

WOOD WORKING MACHINERY.

Atlantic Works, Inc. ..... Philadelphia.

WRECKING AND SALVAGE COMPANIES.

Donnelly Salvage & Wrecking Co. ..... Kingston, Ont.
Parker Bros. Co., Ltd. ..... Detroit.

YACHT AND BOAT BUILDERS.

Bertram Engine Works Co., Ltd. . Toronto, Can.
Drein, Thos. & Son. ..... Wilmington, Del.
Georgian Bay Engineering Works. ..... Midland, Ont.
Truscott Boat Mfg. Co. ..... St. Joseph, Mich.
Willard, Chas. P. & Co. ..... Chicago.

YAWLS.

Drein, Thos. & Son. ..... Wilmington, Del.

ALPHABETICAL INDEX OF ADVERTISERS IN THE MARINE REVIEW.

The star (*) indicates that the advertisement appears alternate weeks. For addresses see advertisements on pages noted.
The dagger (†) indicates that advertisement appears once a month.

Almy Water Tube Boiler Co. 38
American Bureau of Shipping 40
American Injector Co. 3
American Line 35
American Ship Building Co. 5
American Ship Windlass Co 2
American Steam Gauge Co. 39
Anchor Line 35
Armstrong Cork Co 52
Ashton Valve Co 33
Atlantic Works 37
*Atlantic Works, Inc 7

Babcock & Wilcox Co. 7
Baker, Howard H. & Co 52
Bertram Engine Works Co., Ltd. 37
Blake, Geo. F., Mfg. Co. 37
Boland, J. J 44
Bonner & Co., Wm. T. .....
*Boston & Lockport Block Co 31
Boston Steamship Co. 35
Bourne-Fuller Co. 33
Bowers, L. M. & Co. 38
Brown Hoisting Machinery Co., Inc. 2
Buffalo Dredging Co. 42
Buffalo Dry Dock Co 4

*Camden Anchor-Rockland Machine Co 12
Case Machine Co 11
Chicago & Great Lakes Dredge & Dock Co. 42
Chicago Nautical School 37
Chicago Ship Building Co. 4
Cleveland City Forge & Iron Co. 51
Continental Iron Works 2
Cory, Chas. & Son 50
Craig Ship Building Co 5
Crapo, Wm. & Sons, S. & E. B. Co 8
*Crandall & Son, H. I. 3
Crane Co. 38-40

Duke Engine Co. 38
Dearborn Drug & Chemical Wks. 11
DeGrauw, Aymar & Co. 51
Delaware, Belleville & Co. 33
Delaware River Iron S. B. & E. Works 37
Detroit Ship Building Co. 5
Detroit Crucible Co., Joseph 50
Donnelly Salvage & Wrecking Co. 40
Drein, Thos. & Son 36
Dredge & Sullivan Dredging Co. 42

Elphicke, C. W. & Co. 44

Falls Hollow Staybolt Co. 38
Fisher Electrical Works 36
Fitz-Simmons & Connell Co 42
Fix's Sons, S. 50
Fleming & Co., E. J. 44
Fletcher Co., W. & A 37
Fogg, M. W. 42
Fore River Shipbuilding Co 37
Frankfort M. A. & P. G. I. Co. 40

General Electric Co. 52
*Georgian Bay Engineering Wks. 37
Gilchrist, Albert J 44
Gilchrist & Co., C. P. 44
Goulder, Holding & Masten 44
Great Lakes Engineering Works 14
Great Lakes Register 40

Hall, John B. 44
Hanna & Co., M. A 43
Hawgood & Co., W. A 44
Helm & Co., D. T. 44
Hickler Bros. 42
Holmes, Samuel 44
Holzapfel's American Compositions Co 36
Hoyt, Dustin & Kelley 44
Hunt & Co., Robert W 45
Hutchinson & Co. 44
Hyde Windlass Co. 52
Hynd, Alexander 45

International Mercantile Marine Co. 35

Jenkins Brothers 52
Jenks Ship Building Co 5

Kahnweiler's Sons, David 36
Katzenstein & Co., L. 36
Kidd, Joseph 45
*Kieley & Mueller 33
Kingsford Foundry & Machine Works 38
Kreer & Parsons 45
Kremer, C. E 44

Lake Superior Contracting & Dredging Co. 42
Lebanon Chain Works 51
LeMois Scientifique et Industrial 12
Lester, S. S. 48
Lockwood Mfg. Co 37
Lovejoy, H. O. 45
L. S. & M. S. Ry. 51
Lunkenheimer Co. 13

McCarthy, T. R. 44
McCurdy, Geo. L. 40
*McMyler Mfg. Co. 36
MacDonald, Ray G 45
Marine Iron Co., Bay City, Mich. 43
Marine Iron Works 3
*Marine Mfg. & Supply Co. 36
Martin-Barriss Co 39
Maryland Steel Co 9
Matteson & Drake 36
Milwaukee Dry Dock Co 4
Mitchell & Co. 44
Morse & Son, A. J 50
Mosher Water-Tube Boiler Co. 39
Motor Boat and Sportsman's Show 39
Moulton Steering Engine Co. 38

Nacey, James 45
New Jersey Zinc Co. 11
Newport News Ship Building & Dry Dock Co 6
New York Belting & Packing Co. 12
New York & Cuba Mail S. S. Co. 34
New York Shipbuilding Co. 13
Northwestern Steam Boiler & Mfg Co. 38

Otis Steel Co 9

Parker Bros. Co. 44
Peck, Chas. E. & W. F 40
*Penberthy Injector Co. 5
Pickands, Mather & Co. 43
Pittsburg Coal Co. 9
Potter & Potter 45
Potter, J. D. 36
Powell, Ambrose V 45
Prindiville & Co. 44

Reading Iron Co. 13
Record of American & Foreign Shipping 40
Red Star Line 35
†Reilly Repair and Supply Co., Jas 13
Reliance Mfg Co 36
Rice, Henry 45
Richardson, W. C 44
*Ritchie & Sons, E. S 39
Roberts Safety Water-Tube Boiler Co 11
Roelker, H. B. 37
Ross Valve Co 50

Safety Car Heating & Lighting Co 7
Scherzer Rolling Lift Bridge Co 52
Schrader's Son, A 2
Shaw, Warren, Cady & Oakes. 45
*Shelby Steel Tube Co 7
Sheriffs Mfg. Co. 34
Shipowners' Dry Dock Co. 37
Shipping World 51
*Smith & Son, Abram 43
Smith Co., L. P. & J. A 42
Smith Coal & Dock Co., Stanley B 9
Smith, Stanley B., & Co 9
Smooth-On Mfg. Co 37
*Standard Oil Co 51
Starke Dredge & Dock Co., C. H. 42
Stirling Co 9
Stratford Oakum Co., Geo 2
Sturtevant, B. F. Co 52
Sullivan, M 43
Sullivan & Co. 44
Superior Ship Building Co. 4

Taylor Water-Tube Boiler Co. 39
Thropp, J. E. & Sons Co. 50
Trout, H. G 34
Truscott Boat Mfg Co 36

United Fruit Co. 35
Upson-Walton Co. 52

Victor Metals Co. 2

Walker, Thomas & Son. 33
Ward Line 35
*Watson-Stillman Co 51
Westinghouse Electric & Mfg. Co 39
White, Johnson, McCaslin & Cannon 44
*Willard, Chas. P. & Co 43
Wood, W. J. 45
*Woodhouse Chain Works. 3

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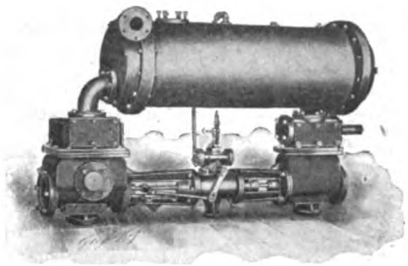

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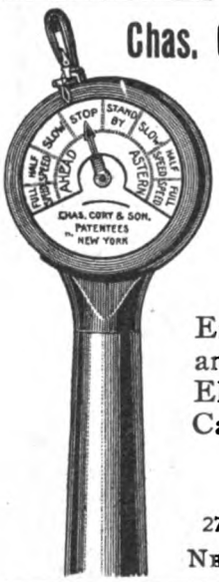

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No. 40, Toledo and Buffalo Accom	†10:00 a.m.	†10:30 a.m.
No. 32, Fast Mail	*11:25 a.m.	*11:30 a.m.
No. 48, Accommodation via Sandusky	†1:40 p.m.	.....
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No. 6, Limited Fast Mail	*5:40 p.m.	*5:45 p.m.
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No. 23, Western Express	*10:30 a.m.	*10:35 a.m.
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No. 33, Southwestern Express	*12:25 p.m.	.....
No. 133, Cleveland and Detroit Exp.	.....	*12:45 p.m.
No. 47, Accommodation	†11:00 a.m.	†3:00 p m.
No. 141, Sandusky Accommodation	.....	†3:10 p.m.
No. 43, Fast Mail	*4:35 p.m.	*4:40 p.m.
No. 127, Norwalk Accommodation	.....	†5:10 p.m.
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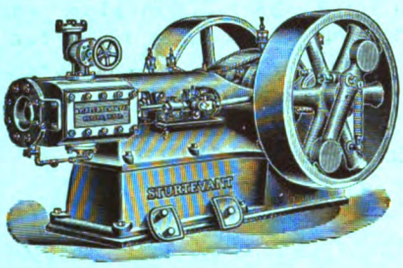

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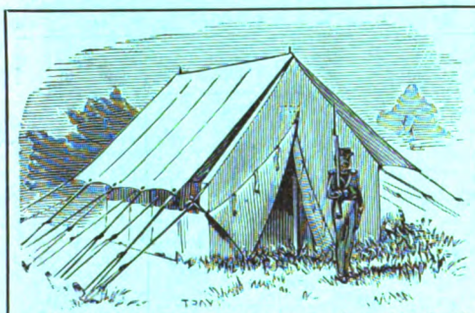

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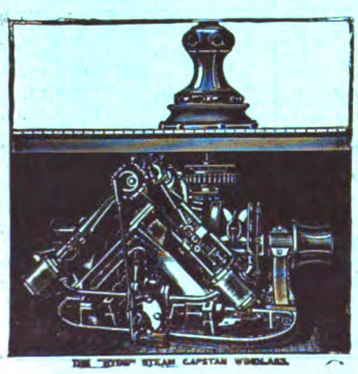

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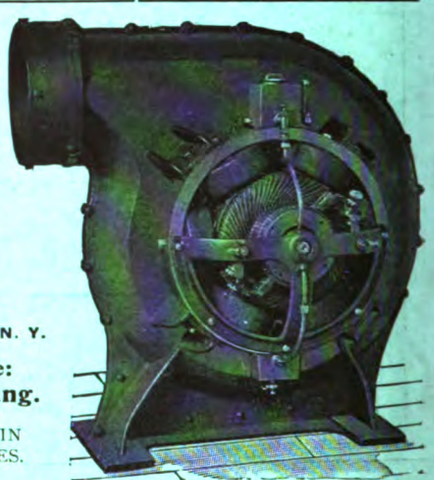

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